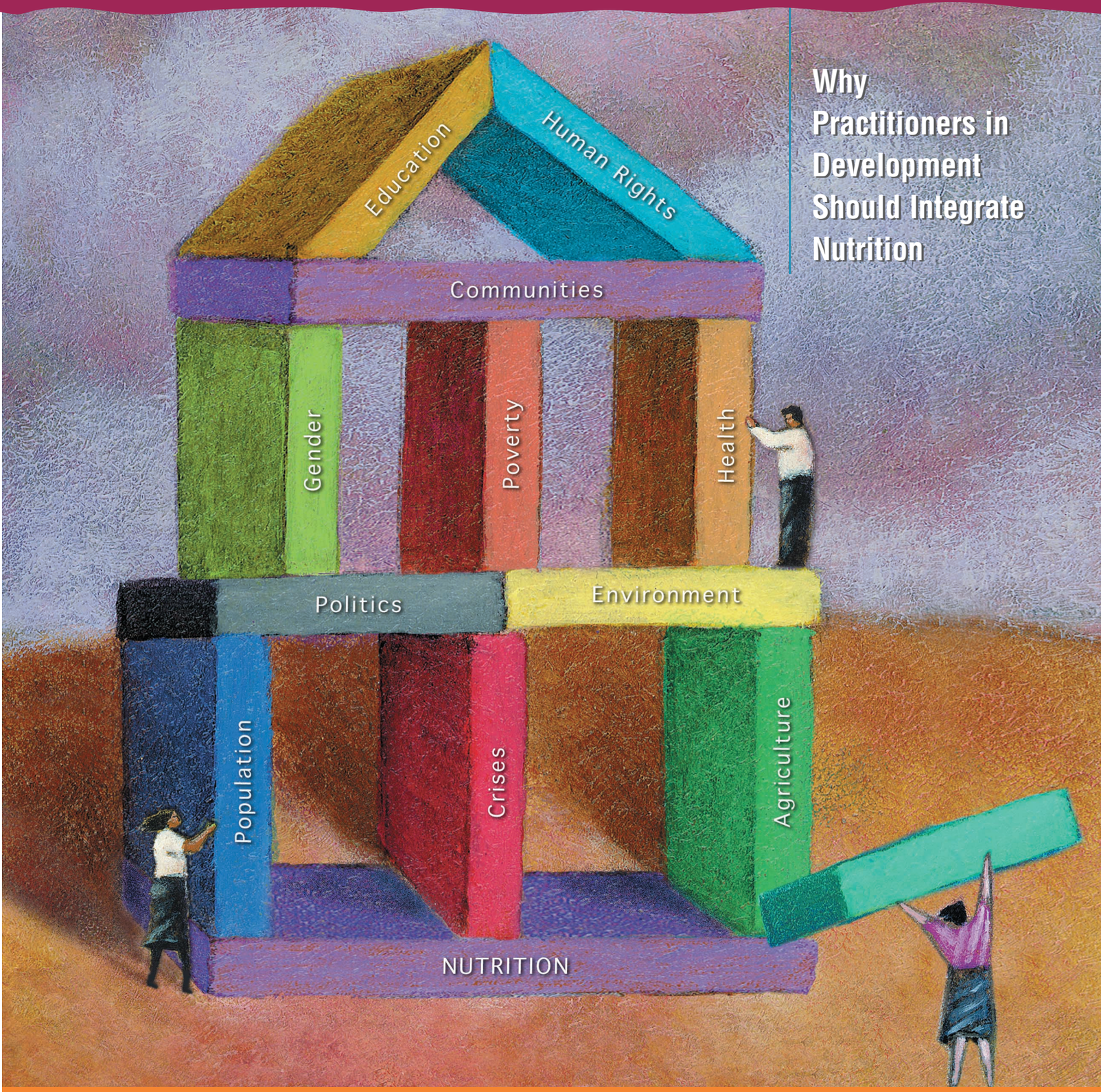
A FOUNDATION FOR DEVELOPMENT

Why Practitioners in Development Should Integrate Nutrition



United Nations

Administrative Committee on Coordination
Sub-Committee on Nutrition

United Nations

NUTRITION

Acknowledgments

As coordinators of the project we would like to express our sincere gratitude to the German Ministry for Economic Cooperation and Development (BMZ), the International Food Policy Research Institute (IFPRI), and The Netherlands Ministry of Foreign Affairs for their sponsorship of this work. Many thanks are also due to the authors for the time they dedicated to preparing the briefs. Several individuals brought expertise to editing and design, including Evelyn Banda, Bonnie McClafferty, Uday Mohan, and Klaus von Grebmer (all from IFPRI), and Heidi Fritschel. The support of the Secretariat and the Bilateral Cluster of the ACC/SCN throughout the life of this project is gratefully acknowledged.

— Barbara Macdonald (CIDA), Rainer Gross (GTZ), and Lawrence Haddad (IFPRI)

About the ACC/SCN

The Administrative Committee on Coordination (ACC), which is comprised of the heads of the UN Agencies, recommended the establishment of the Sub-Committee on Nutrition (SCN) in 1976, following the World Food Conference (with particular reference to Resolution V on food and nutrition). This was approved by the Economic and Social Council of the UN (ECOSOC) by resolution in July 1977. The UN members of the SCN are ECA, FAO, IAEA, IFAD, ILO, UN, UNAIDS, UNDP, UNEP, UNESCO, UNFPA, UNHCHR, UNHCR, UNICEF, UNRISD, UNU, WFP, WHO and the World Bank. IFPRI and the ADB are also members. From the outset, representatives of bilateral donor agencies have participated actively in SCN activities as do non-governmental organizations. The Secretariat is hosted by WHO in Geneva.

The mandate of the ACC/SCN is to serve as the UN focal point for promoting harmonized nutrition policies and strategies throughout the UN system, and to strengthen collaboration with other partners for accelerated and more effective action against malnutrition. The aim of the SCN is to raise awareness of and concern for nutrition problems at global, regional and national levels; to refine the direction, increase the scale and strengthen the coherence and impact of actions against mal-nutrition worldwide; and to promote cooperation among UN agencies and partner organizations. The SCN's annual meetings have representation from UN Agencies, donor agencies and NGOs; these meetings begin with symposia on subjects of current importance for policy. The SCN brings such matters to the attention of the ACC and convenes working groups on specialized areas of nutrition. Initiatives are taken to promote coordinated activities—interagency programmes, meetings, publications—aimed at reducing malnutrition, reflecting the shared views of the agencies concerned. Regular reports on the world nutrition situation are issued. Nutrition Policy Papers are produced to summarize current knowledge on selected topics. *SCN News* is published twice a year, and the RNIS is published quarterly.

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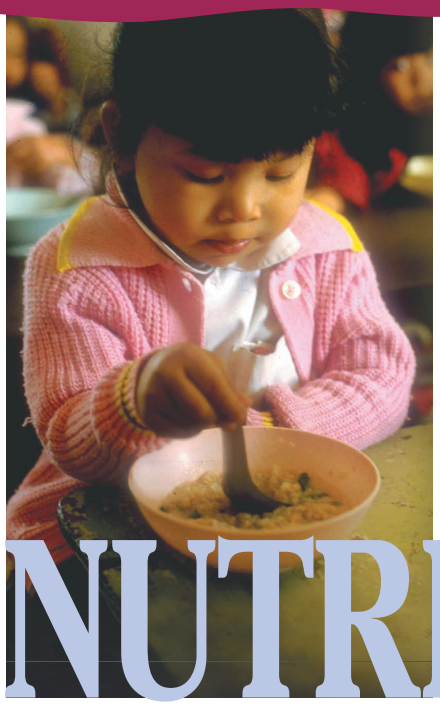

Nutrition: Making the Case

BARBARA MACDONALD, LAWRENCE HADDAD, RAINER GROSS, AND MILLA MCLACHLAN

NUTRITION

Brief 1 of 12

In the past 20 years hundreds of millions of people have benefited from improved living standards. Many countries have experienced increases in life expectancy, growth in per capita food production and gross domestic product, improvements in school enrollment, gains in the status of women, improved access to primary health care and clean water, and an increased respect for human rights.

The work is, however, substantially unfinished. Some countries and regions have seen only small gains, if any at all. Progress has been particularly slow in Sub-Saharan Africa, but many countries in South and Central Asia, Central America, and the Near East have also failed to witness improvements in welfare. For the developing world as a whole, poverty rates failed to fall in the 1990s (except in China), the number of young children that

TABLE 1—INDICATORS OF UNDERNUTRITION AND POVERTY IN DEVELOPING COUNTRIES

Indicator	Level (all developing countries)	Trend (all developing countries)
Preschool stunting (low height for age)	181.92 million (2000)	At current trends, predicted to halve by approximately 2030
Preschool underweight (low weight for age)	149.63 million (2000)	At current trends, predicted to halve by approximately 2030
Preschool wasting (low weight for height)	50.59 million (1995)	No data
Vitamin A deficiency	Preschoolers with subclinical deficiency: 75–251 million (global)	No data
Anemia prevalence	43 percent (1998)	No data
Iodine deficiency (percent affected by goiter)	38 percent (global)	No data
Number of "undernourished" (number of individuals affected by calorie supply deficits)	777 million people	At current trends, predicted to halve by 2055
Poverty rate (percentage living on less than a $1 a day)	24 percent	If China is excluded, the percentage of people living on less than $1 a day has been constant during the 1990s.

Sources: ACC/SCN, Fourth report on the world nutrition situation (Geneva: ACC/SCN in collaboration with the International Food Policy Research Institute, 2000); FAO, The state of food insecurity in the world (Rome, 2001); World Bank, World development report 2000/2001: Attacking poverty (New York: Oxford University Press for the World Bank, 2000).

are growth-impaired fell slowly, and the number affected by HIV/AIDS increased dramatically (Table 1 highlights progress in some development indicators linked to food and nutrition). Future improvements in agricultural productivity and water productivity will need to come within the context of increasingly fragile lands, changing global climate patterns, and increasing population. Against a backdrop of accelerating globalization of trade, investment, labor, and information, inequality is increasing, both between and, to some extent, within countries. Even if this growing gap between rich and poor does not come at the direct expense of the living standards of the poorest, rising inequality may threaten growth in many ways, not least by lending itself to economic and political instability as indicated in the extreme by conflict.

New policies, institutional arrangements, technologies, and resources will be crucial to accelerating positive trends and reversing negative ones. This set of briefs argues that good nutrition is an essential building block for development and that it supports efforts to generate new resources and technologies and to imagine, create, and nurture new institutions and partnerships to improve global welfare. The Millennium Development Goals (Box 1) serve to summarize the development ambitions of the global community over the next generation. Adopted by 189 member states as part of the United Nations Millennium Summit, the goals set an impressive agenda for the coming 20 years. These briefs show how nutrition can play a key role in realizing each of these ambitions.

The briefs focus not on the causes of undernutrition, but on the consequences of good nutrition. We know, for example, that poverty increases undernutrition. But the reverse is also true: good nutrition reduces poverty. Similar arguments can be made in other areas such as gender, education, human rights, and health. The briefs demonstrate that good nutrition will help countries meet a wide range of goals that are crucial to accelerating development. As such, it is an excellent investment.

But how easy is it for those outside of the nutrition community to make those investments? The briefs show that it is quite straightforward to make pro-nutrition investments within a variety of sectors. There are many pathways to undernutrition, and the baby that fails to grow properly has been let down by a potentially large set of actors and sectors. Correspondingly there are many opportunities within those sectors to effect improvements in nutrition.

Yet despite decades of nutrition advocacy, most developing countries and development agencies still do not adequately recognize nutrition in their policies and strategies. One reason is competition for resources among different sectors and a perceived conflict

BOX 1—MILLENNIUM DEVELOPMENT GOALS

1. Eradicate extreme poverty and hunger.
2. Achieve universal primary education.
3. Promote gender equality and empower women.
4. Reduce child mortality.
5. Improve maternal health.
6. Combat HIV/AIDS, malaria, and other diseases.
7. Ensure environmental sustainability.
8. Develop a global partnership for development.

Source: United Nations General Assembly, *Road map towards the implementation of the United Nations Millennium Declaration*, Report of the Secretary-General (New York, 2001).

between sector-oriented development strategies. Unfortunately, in a minefield of competing interests, nutrition advocates often still argue that malnutrition must be eliminated only for humanitarian purposes. These arguments are appropriate, as adequate food and nutrition are first and foremost human rights. However, nutrition is also an essential input to social and economic development and an invaluable cross-cutting investment. This series of briefs summarizes the contribution of nutrition to development in a number of areas and highlights the potential for many win-win investments that simultaneously advance nutrition and non-nutrition goals.

The briefs are intended primarily for development specialists who do not routinely work on nutrition policies and programs, but they are also targeted toward nutrition professionals. The briefs seek to expand the set of arguments for investing in nutrition and to stimulate reflection on what nutrition offers in addition to what the elimination of undernutrition demands. Ultimately we hope that the series will stimulate dialogue and joint action between nutrition advocates and individuals or groups concerned with other development goals.

Each brief addresses recent developments in a key development sector, identifies the potential contribution of nutrition to that sector, and shows how actions in that sector could promote nutrition. For instance,

- investments in girls' nutrition can help advance the status of women and increase the incentives for smaller desired family size;
- attention to nutrition concerns can make agriculture more profitable by connecting it to the needs of consumers, and it can make environmental practices more sustainable by bringing them in line with traditional dietary patterns;
- improved nutrition is an important first step in developing human capital and reducing poverty;

- good nutrition can ameliorate the conditions for conflict;
- nutrition programming can help develop participatory processes that promote human rights and facilitate successful decentralization; and
- better nutrition status improves immunological integrity and helps prevent noncommunicable diseases such as diabetes.

The series closes with a brief that describes how the nutrition community can enhance the ability of others to perceive a convergence between the nutrition agenda and their own values, beliefs, and interests. Suggestions for further reading are included in all areas.

In an environment of increasingly scarce development resources, investments in nutrition are unique. Such investments have a wide range of positive develop-

ment effects and can be made by a wide range of development actors working within their own contexts. It is the numerous benefits to be derived from nutrition investments combined with the ease of making them that makes nutrition such a powerful means to the end we all seek: a better life for all.

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Suggested citation: Barbara Macdonald, Lawrence Haddad, Rainer Gross, and Milla McLachlan, "Nutrition: Making the Case." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.

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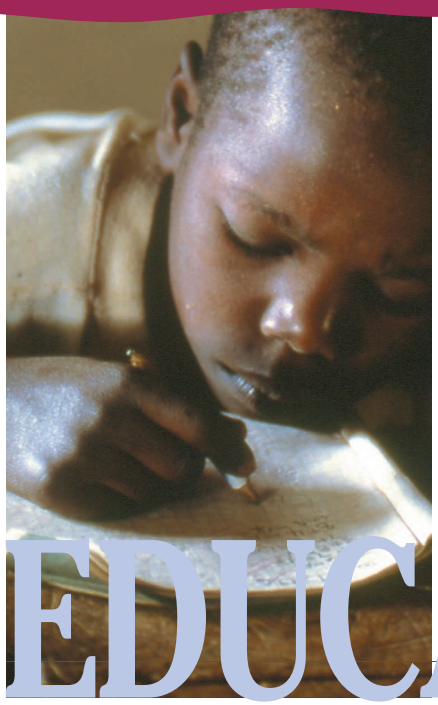

Nutrition and Education

MATTHEW JUKES, JUDITH MCGUIRE, FRANK METHOD, AND ROBERT STERNBERG

EDUCATION

Brief 2 of 12

No nation can afford to waste its greatest national resource: the intellectual power of its people. But that is precisely what is happening where low birth weight is common, where children fail to achieve their full potential growth, where micronutrient deficiencies permanently damage the brain, and where anemia and short-term hunger limit children's performance at school. Increasingly in this world, it is intellectual resources, not natural or physical resources, that determine national power. How can a nation compete internationally when 20–50 percent of its population is intellectually compromised? Since the child survival revolution has saved so many children's lives, it is now time to focus on the quality of life and health of the survivors.

Good Nutrition Is Essential If Learning Is to Occur

Investing in nutrition is a necessity, not a luxury, in today's world. A quick review of the evidence demonstrates the importance of nutrition to intellectual and educational power.

Thirty-six percent of children under five are growth retarded (that is, their height-for-age is low). This figure may rise to around 50 percent for school-age children. Growth retardation is associated with a substantial reduction in mental capacity and adverse school performance, even in mild to moderate cases, and ultimately leads to reduced work productivity.

An estimated 1.6 billion people worldwide are iodine deficient. Iodine deficiency is associated with an average 13.5 point reduction in IQ for a population. Deficiency in school children leads to reduced cognitive function while deficiency during fetal life can have profound and irreversible effects on the child's mental capacity: "cretinism" due to iodine deficiency is still found in mountainous and floodplain areas of the world.

Seventeen percent of infants are born with low birth weight (under 2.5 kilograms), resulting in poorer cognitive performance during infancy, although this effect is overshadowed by that of malnutrition. In the longer term, children born with a low birth weight have a poor attention span in school.

Fifty-three percent of school-age children suffer from iron-deficiency anemia. Reduced cognitive abilities, on the order of 1 standard deviation, are associated with anemia in both infants and school-age children with similar reductions in school performance.

When children go to school without breakfast, their performance goes down by around 0.1 standard deviations (4 percentiles) but only if they are malnourished or from poorer backgrounds.

Nutrition affects school performance indirectly as well. Undernourished children (low height-for-age) tend to be enrolled later in school than better-nourished children. This could be because parents deem shorter children to be younger, because they do not believe the children are physically large enough to attend school, or perhaps because they are investing more in the better-nourished children. In any case, late enrollment compounds the problems of intellectual impairment caused by nutritional deficits.

There is ample evidence that increased height, working both through physical capacity and through learning capacity and school performance, results in increased adult wages and productivity. One analysis of U.S. data finds that an increase in birth weight of one pound leads to an increase of 7 percent in lifetime earnings. Another study in Brazil finds that a 1 percent increase in height results in a 2.4 percent increase in adult male earnings. The impact of the nutrition-related cognitive improvements alone is 1.3:1.

Improving Educational Performance through Nutrition

How can these problems be resolved? The first three years of life, plus life in the womb, are the most important periods in terms of mental, physical, and emotional development. It is during these critical windows of time that basic human capital is formed. Most growth failure occurs between 6 months and 24 months of age. Early damage due to anemia, iodine deficiency, and chronic malnutrition can only partially be reversed in later life. Preventive programs, therefore, must be accorded high priority.

Health, family planning, and nutrition programs for women before and during pregnancy are critical to assure that mother and infant leave the childbirth experience in optimal physical and mental condition.

After birth, growth promotion and development programs, integrated early childhood programs, and parent education are critical—and cost-effective. The return on investment in growth promotion and micronutrient programs varies from 7:1 to 84:1, and early childhood development programs are calculated to have a benefit-cost ratio of around 2:1. Trials of preventive protein supplementation and of iron supplementation in the first two years of life have found considerable benefits to children's intellectual development up to 10 years later. Targeted fortification of weaning foods is cost-effective and has been credited with eradicating most anemia in Sweden and the United States. Food fortification programs (salt iodization and iron fortification of staple foods) are inexpensive and effective in addressing most of these micronutrient deficiencies in the whole population.

Remedial efforts targeted at older children such as preschool programs, school health and nutrition programs, and adolescent interventions do help children do better in school, but because of an absence of interventions earlier in life, children often enter school as "damaged goods." Including psychosocial stimulation in remedial supplementation programs, in addition to nutritional supplements, may be critical. Years of malnutrition have a cumulative effect that needs to be reversed, and a combination of nutritional and psychosocial interventions can have a greater effect on cognitive development and physical growth than either intervention alone.

There is much debate about whether schoolchildren, particularly adolescents, can catch up in their physical growth or in their mental capacity. Although it is likely that children are most vulnerable to the effects of nutritional deficits in the first few years of life and that some of these effects may be irreversible, much can still be done to improve the learning potential of malnourished schoolchildren. Undernutrition is widespread among schoolchildren (particularly in South Asia and Africa), and their nutritional status often deteriorates during their school years. Little is known, however, about how to reverse such deterioration. Anemia is a particularly pervasive problem of schoolchildren. Deworming and iron supplementation or fortification programs will help them work at their best. School feeding—particularly breakfasts or morning snacks—can help hungry children stay attentive, but the high cost of such programs demands a high degree of targeting and additional research to improve their impact on undernutrition.

Conclusion

Undernutrition limits national intellectual potential. It has major effects during the period from conception through the second birthday. Irreversible damage to the physical, mental, and social development of the child occurs during this period. Early health, nutrition, and psychosocial stimulation can prevent malnutrition and its impact on learning. This powerful synergy between psychosocial stimulation and nutrition suggests that integrated attention to the young child is critical and that early childhood is the most cost-effective period for investment in education. Later interventions with schoolchildren are useful remedial measures where children have suffered early insults and continue to suffer from malnutrition. Great effort should be made to prevent malnutrition before the second birthday as a high-priority investment in educability and economic growth.

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Suggested citation: Matthew Jukes, Judith McGuire, Frank Method, and Robert Sternberg, "Nutrition and Education." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.

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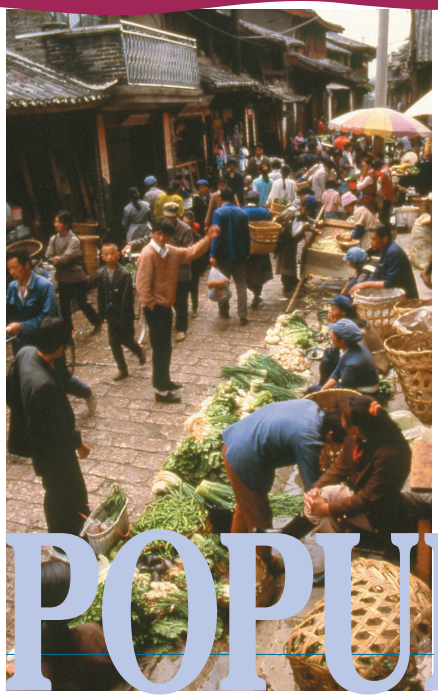


Nutrition and Population

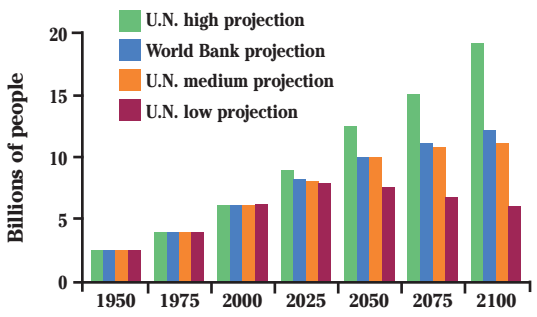
ROLANDO FIGUEROA AND
ROSALIA RODRIGUEZ-GARCIA

POPULATION

Brief 3 of 12

During the second half of the 20th century, the world population experienced demographic changes at an unprecedented pace. According to United Nations estimates, the world's population was 2.521 billion in 1950 and 6.055 billion by mid-2000. This represents a mean annualized growth rate of 1.75 percent per year, and 2.09 percent per year for developing regions. At the same time, average life expectancy at birth worldwide increased by 9.5 years in just 15 years (from 46.5 years in 1950-55 to 56.0 years in 1965-70), and in developing regions by 11.3 years (from 40.9 years to 52.2 years), almost certainly the fastest pace in human history. The latest birth data suggest that the world's population will likely peak at about 8 billion people in 2030 and then move on a downward trend for the rest of the century (Figure 1).

FIGURE 1: WORLD POPULATION PROJECTIONS, 1950–2100



Source: UNICEF, State of the world's children 2000 (New York, 2000).

Programs that seek to slow population growth and improve the quality of life under conditions of rising populations will be most successful if they take into account the many links between demographic changes and nutrition.

The Links between Nutrition and Demographic Change

Nutrition and population changes are intimately linked in several ways. First, a population's ability to nourish itself is a major factor in fertility and mortality rates. Maternal nutritional status affects fecundity, and hence fertility. This relationship has been observed during famines, when birth rates drop markedly.

In addition, good nutrition reduces maternal, neonatal, and child mortality. Improved child survival helps slow population growth by increasing birth intervals and reducing the demand for large families. A situation of fewer pregnancies, in turn, reduces the risk of maternal death.

Well-nourished mothers are more likely to survive childbirth themselves and to deliver healthy babies for several reasons. The prevention of stunting among girls allows them to reach their full growth potential, including that of the pelvic girdle, and helps reduce the risk of

both obstetrical complications and low birth weight. Micronutrient programs reduce maternal mortality by as much as 44 percent via reductions in hemorrhage, sepsis, anemia, and eclampsia. Adequate maternal folate and iodine status are known to reduce birth defects, fetal brain damage, and the risk of stillbirth.

After birth, infants that receive good nutrition face better chances of survival. Severely malnourished children are 8 times more likely to die than their well-nourished counterparts, and bottle-fed babies are 14 times more likely to die than those that are breast-fed. Vitamin A programs have been demonstrated to reduce mortality rates of children under five years of age in both Africa and Asia.

Breast-feeding, especially when exclusive for about six months after birth, is not only important for infant nutrition but also for reducing fertility. Lactation amenorrhea is the process whereby breast-feeding suppresses the hormone necessary for fertility. This method of family planning provides protection comparable to other methods (98 percent effective with typical use), up to 0.5 couple-years of protection. In addition, breast-feeding stimulates contraction of the uterus after birth, reducing the risk of complications associated with delivery.

Not only does nutrition affect population growth and reproductive health, but population and demographic changes also have an influence on people's nutritional status. Rising population, for instance, threatens food availability in many developing countries, especially those in which populations are expected to double in the next 20 to 25 years.

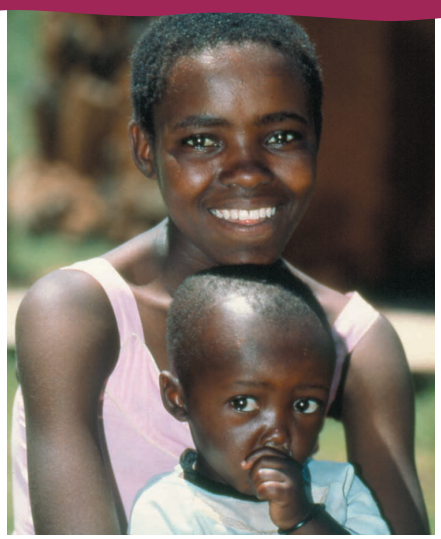
Population growth is sure to go hand in hand with increased urbanization. By 2020 populations in urban areas of developing countries, where malnutrition is commonplace, may double to reach 3.4 billion. In many poor and congested urban areas, diarrheal diseases and undernutrition are frequent because of poor food hygiene, inadequate water supplies and waste disposal, poor housing, and the declining prevalence and duration of breast-feeding and the corresponding increase in bottle-feeding.

Other demographic changes also affect people's quality of life and nutritional status. For instance, the number of people over 65 years of age has increased substantially in most countries. According to estimates, about 60 percent of the world's population over the age of 65 lives in developing countries. This situation has a significant impact on the types of health and social services people demand. The health sector must cope with the increased incidence of noncommunicable diseases that occur with aging. And the transition to highly processed market foods coupled with reduced physical activity compounds the effects of age, with the result that obesity now affects 250 million individuals worldwide and cancer, diabetes, and coronary heart disease are becoming more common in developing countries.

Nutrition Components in Population Programs

Many population policies address high fertility levels through family planning programs designed to reduce the number of births per woman and to increase the intervals between pregnancies. They also work to reduce maternal mortality and ensure healthy pregnancy outcomes. These commitments are outlined in the Program of Action of the International Conference on Population and Development (ICDP), adopted by the signatory countries of this conference (see Box 1).

Programs designed to slow population growth and achieve better health status should include not only actions to promote maternal health and safe delivery of infants, but also actions encouraging immunizations,



Box 1
ICPD Program of Action, Paragraph 7.2

Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capacity to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

breast-feeding, healthy complementary feeding of infants and young children, consumption of micronutrients, and household education to improve caregiving practices.

Conclusions

Universal access to basic social services, including nutrition-related services, is a "social absorber" that smoothes the transition from poverty to a more developed status. Countries that have invested in basic social services have achieved increased success in reducing poverty and increasing human development.

Nutrition actions can not only help ensure that rapid increases in population, life span, and urbanization are accompanied by improved quality of life and economic development, but also help slow population growth by lowering fertility rates. The development of sustainable rural and urban food systems can help ensure that growing populations are fed and environments are conserved. Micronutrient programs and breast-feeding promotion can lead to healthy, well-spaced pregnancies and can reduce mortality. Nutrition communications can help reverse trends toward obesity and increased rates of cancer, diabetes, and coronary heart disease occurring in developing countries. By increasing the level of physical and mental effort a person is able to exert, nutrition programs can also yield increased wage returns up to $84 per dollar invested. All these programs enhance human capital, improving the capacity of populations to develop to their full potential.

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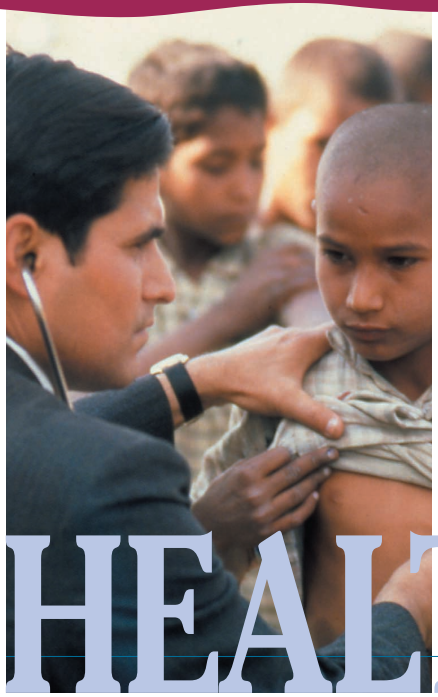


HEALTH

Nutrition and Health

FRANCES DAVIDSON

Global health trends in the 1990s reflected many past successes and pointed to many future challenges. Nations experienced significant progress toward end-of-decade goals established at the 1990 World Summit for Children. Downward trends in mortality of infants and children under five from all causes were encouraging—the summit named a 33 percent rate reduction as its goal; a reduction of 14 percent was attained, resulting in 3 million fewer child deaths each year.

Other trends were less positive. For example, the 1990 summit specified a 50 percent reduction in the maternal mortality ratio by 2000. The ratio remained relatively static, however, at 400 maternal deaths per 100,000 live births. Increases in the percentage of the population with access to safe drinking water and sanitation were estimated at 3 and 5 percentage points, respectively— far short of targets—leaving 1.1 billion people without access to safe water and 2.4 billion without access to adequate sanitation.

Moreover, an estimated 40 million people were living with HIV/AIDS at the end of 2001. Five million of those were newly infected, a slight decline from the previous year. In some regions the majority of new infections were seen in young adults, especially young women.

The spread of tuberculosis (TB) and the HIV pandemic continued to fuel one another, and the growing threat of coinfection posed new risks for already vulnerable populations. By 1998, just six countries had reached the World Health Organization (WHO) goal of detecting 75 percent of new infectious TB cases and curing 85 percent of those detected. The adoption of DOTS (directly observed treatment short-course) therapy for TB holds enormous potential for stemming an epidemic that continues to kill 2 million people annually.

The general relationship between infection and undernutrition is well established. So what can improved nutrition status do to reinforce these positive trends in health and reverse the negative ones?

Nutrition as a Promoter of Good Health

Undernutrition affects both the body's immunological and nonimmunological defenses. As a result, it increases the incidence, severity, and duration of common childhood diseases, such as diarrhea, acute respiratory infections, and measles. Approximately 55 percent of under-five mortality in developing countries is associated with malnutrition, and a modest increase in breastfeeding rates alone has the potential to prevent

up to 10 percent of deaths among children under five.

Evidence is also mounting on the specific relationships between certain types of undernutrition and morbidity and mortality. Research has shown that improving the vitamin A status of vulnerable populations can reduce under-five mortality rates by at least 23 percent, preventing between 1.3 and 2.5 million deaths each year and saving hundreds of thousands of children from irreversible blindness. In addition, adequate vitamin A may also have a protective effect on mother-to-child transmission of HIV, and weekly supplements given to women of reproductive age have been shown to reduce maternal mortality by up to 44 percent. Recent research has also demonstrated that vitamin A supplementation can mitigate the adverse effects of HIV infection, malaria, and diarrhea on child growth.

Iron deficiency is also a serious cause of ill health. The WHO *Global Burden of Disease* report ranks iron deficiency anemia as second among leading causes of disability. Its effects, shouldered disproportionately by women and children, represent serious obstacles to the health and socioeconomic development of nations. The WHO upholds that improvements in the iron status of affected populations can increase levels of national productivity by 20 percent. Iron interventions can also be expected to reduce maternal mortality considerably, as anemia is a contributing factor in 20 percent of all maternal deaths.

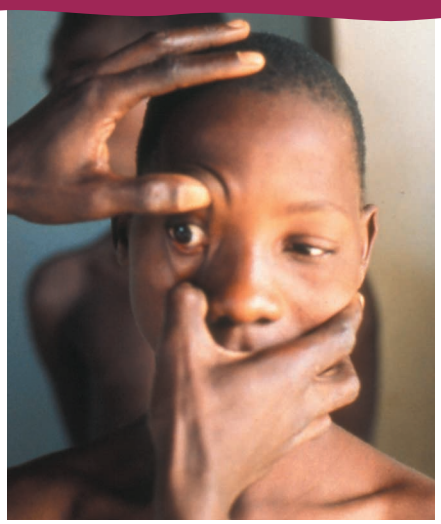
The most common cause of preventable mental retardation and brain damage, iodine deficiency takes a profound toll on health and productivity in affected countries. While substantial progress has been made toward universal salt iodization, it is clear that sustained effort will be required to curb a problem that still affects 50 million children. Investing in programs to address iodine deficiency and its disorders has the potential to protect the more than one and a half billion people still at risk of impaired development, physical deformities, and poor birth outcomes.

Interestingly, undernutrition may also play a role in increasing the virulence of infections, putting even well-nourished populations more at risk in the future. Researchers are reexamining the interactions of diet, agent, and host, with at least one group of investigators concluding that deficient levels of nutrients, such as selenium, may increase not only host susceptibility to infection, but also the virulence of the pathogen itself.

The role of obesity and poor diet quality in the development of chronic disease has long been recognized in the industrialized world. Evidence is emerging, however, that the linkages are equally strong in developing countries, with the added wrinkle that malnutrition suffered in the womb may lead to a predisposition to hypertension, coronary heart disease, and diabetes later in life. The double burden of early undernutrition and later overnutrition is especially evident in countries undergoing rapid economic development, where chronic disease rates are showing alarming increases. The WHO estimates that by 2025 the prevalence of noninsulin-dependent diabetes will have increased by 170 percent in developing countries.

Incorporating Nutrition Interventions into Health Sector Programs

Good nutrition is critical to preventing not only diseases of deprivation, but also chronic diseases that afflict affluent and nonaffluent populations alike. But are there opportunities for development practitioners in the health community to incorporate nutrition? Recent experience suggests that there are.



For example, the integration of high-dose vitamin A supplementation with National Immunization Days (NIDs) has facilitated impressive increases in coverage. In Sub-Saharan Africa, approximately 60 percent of children were estimated to have received at least one dose in the last six months of 1998, double the coverage from two years earlier. Progress in the elimination of polio, however, is leading to the outphasing of NIDs in many countries where vitamin A supplementation remains a priority, and program planners must devise new ways to establish and sustain high coverage among vulnerable populations.

Several countries have already included vitamin A campaigns in Child Health Weeks. Expanding the nutrition component of Child Health Weeks is also a promising possibility. In addition, the millions affected by HIV, TB, and other infections stand to benefit greatly from programs that consider their special nutritional needs and the ways in which optimal dietary practices can improve overall health. Global initiatives to combat the pandemics may provide a platform for expanded nutrition programs, particularly supplementation and counseling.

As the health community increasingly recognizes the value of adopting integrated tactics for high-priority programs, nutrition emerges as critical. Programs that address malnutrition offer not only direct benefits for the well-being of participants, but also benefits for future generations and remarkable synergies with other types of interventions. In the context of global health priorities, the potential of investments in nutrition is striking. It is the rare public health problem today that would not experience some mitigation through improvements in the nutritional status of the people it afflicts.

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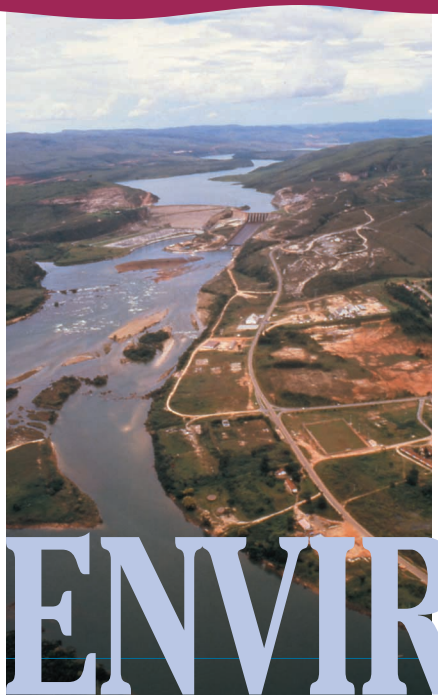


Nutrition and The Environment

TIMOTHY JOHNS AND
PABLO B. EYZAGUIRRE

ENVIRONMENT

Brief 5 of 12

Rapid environmental changes are profoundly altering the relationships between humans and the ecosystems in which they live. These changes include overpopulation, loss of biological resources, ecosystem destruction associated with industrial and commercial development, climatic change, urbanization, modern agriculture employing pesticides and other inputs, and erosion of food crop diversity from years of genetic engineering focused on a few crops.

Such disruptions in environmental integrity can affect patterns of human health, disease, and nutritional status. In its preamble the Convention on Biodiversity recognizes that "… conservation and sustainable use of biological diversity is of critical importance for meeting the food, health and other needs of the growing world population, for which purpose access to and sharing of both genetic resources and technologies are essential." The Intergovernmental Panel on Climatic Change specifically discusses nutritional status as an outcome of climatic change in Africa.

An understanding of these links offers guidance on nutrition-relevant actions that provide sustainable solutions to environmental changes. At a time of unprecedented climatic and environmental change, nutrition knowledge becomes vital in enabling individuals and populations to adapt in the most positive manner possible. The nutritional status of populations, as a recognizable and measurable outcome, should help direct other scientific disciplines and intervention programs in identifying sustainable solutions to the environmental and economic problems facing global communities.

The Environment-Nutrition Connection

As community development priorities merge with those of environmental conservation, it becomes increasingly clear that unless human populations meet their basic survival needs they cannot afford to conserve. At the same time unless local communities protect the environments around them they have limited hope to thrive beyond the short term. As nutrition represents the most fundamental of human needs, it provides a useful perspective from which to address this paradox.

Nutrition research provides essential information on how environmental degradation can lead to major nutrition-related health problems such as malnutrition, infectious disease, and contamination. When people have reduced access to and intake of crucial bioresources, they may suffer from protein-energy

malnutrition and micronutrient deficiencies. Diabetes and coronary heart disease that reflect reduced intake of nutrients and non-nutrients protecting health underscore the cost of increased reliance on processed foods or a narrow species base by industrial societies and urban populations. Major public health problems of global importance such as tuberculosis, gastrointestinal diseases, measles, and respiratory disease all reflect the interaction of nutritional and environmental factors.

Environmental contamination from industrial and agricultural chemicals such as heavy metals, organochlorines, and radionucleotides may compromise people's nutritional status and health either directly or through changes in diet. Herbicides and pesticides eliminate uncultivated food sources from agroecosystems; other chemicals may make them unfit for consumption. Persistent organic pollutants (POPS) transported in the atmosphere can have adverse effects on traditional food systems far removed from major sites of pesticide use.

Seeking Sustainable Solutions

Food-based strategies are key to addressing global hunger and malnutrition as well as enabling vulnerable populations to adapt to environmental and socioeconomic changes.

While modern technology-based farming is essential for producing food for the growing world population, concerns about crop quality and production seldom include nutrition, or if they do, tend to focus on protein. Similarly, acknowledgments that loss of biodiversity and other environmental changes affect diet and health are usually limited to general considerations of food security without attention to the complexity of nutrition-health relationships.

Some research and intervention programs have focused on providing micronutrients such as vitamin A or minerals through genetic improvement, crop diversification, and soil management. More attention needs to be applied, however, to identifying crop varieties and minor crops with selective nutritional assets such as micronutrients, soluble fiber, or antioxidants and to analyzing the nutritional content of indigenous fruits and vegetables and wild edible species. Programs should give greater importance to maintaining the genetic diversity of plant species within home gardens and local agroecosystems. Where they can be exploited sustainably, uncultivated resources can also improve nutrition indirectly by contributing to economic livelihood.

Genetic modification and other strategies that target single nutrients promise selective improvement of plant nutrient composition. Although genetically modified organisms are subject to considerable scrutiny for their potential adverse effects on human health, this technology also has potential ecological and social effects that require careful evaluation.

While institutional approaches are essential to address problems of a global magnitude, national efforts, particularly those involving local communities, are also important. Local multidisciplinary activities that combine nutrition research, ethnobotany, and ecosystem and resource management with health care activities, and that embrace participatory models of empowerment and initiative, offer real hope for addressing problems at the levels where people are directly affected.

Researchers have documented ways in which populations with traditional life-styles (often populations identified as indigenous) satisfy their nutritional needs

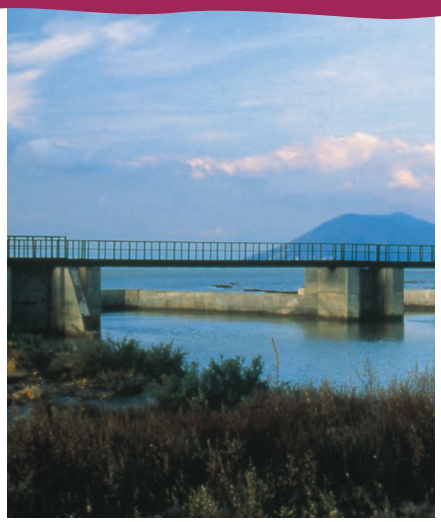
through unique human-environment relationships. For example, rice, pulses, and milk products provide a balance of amino acids for subsistence farmers in India. In situations where animal protein and fat are the primary energy sources, such as among Arctic hunters and dryland pastoralists, populations have adapted specialized preparation techniques and used wild plants to ensure that essential vitamins and minerals are consumed. Nutritional sciences can help determine whether these traditional systems can be adapted for use elsewhere. Coupled with knowledge about the role of nutrition in contemporary health problems, traditional knowledge and resources can guide environmental efforts to identify sustainable solutions.

In turn, adequate nutrition increases options for conservation, or at least reduces pressure on people to use resources unsustainably in the effort to meet their basic needs.

Traditional values of conservation, encompassing relationships to land, spiritual dimensions, and concepts of health, are fragile and vulnerable to modern forces of change. Nonetheless, cultural values can be important components in programs of public health education and ecological recovery. Integrating the biological, social, and cultural dimensions of human-environmental relations is as essential to the present and future sustainability of human health as it has been throughout history.

Conclusion

Major health problems of the 21st century include nutritional deficiencies and dietary changes in both rural and urban settings. Nutritional analyses, combined with an understanding of traditional systems and resources, can help identify the biological and sociocultural components of solutions to dietary and health problems associated with dietary change and adaptive strategies for the future. Addressing nutritional needs offers a primary rationale for the preservation of traditional knowledge and life-styles, the conservation of wild and



cultivated resources, and the sustainable use of the environments in which they are located.

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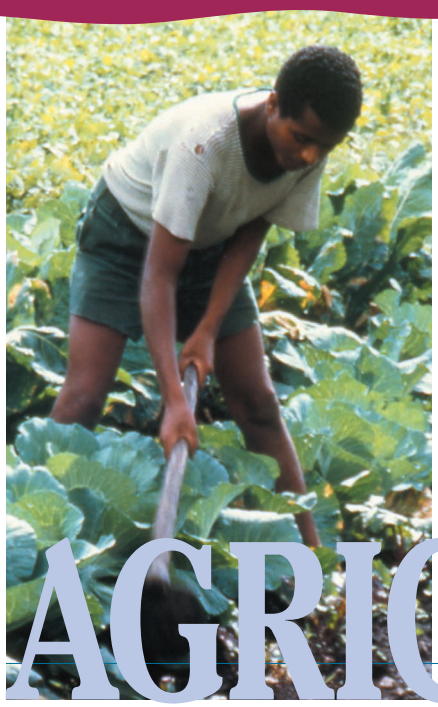


Nutrition and Agriculture

ARNE OSHAUG AND LAWRENCE HADDAD

AGRICULTURE

Agriculture and nutrition are linked in many ways. People have long recognized the most obvious connection—food security is one of the three pillars of good nutrition, along with good care and good health. In 1945 concerns about recurring famines and malnutrition led to the establishment of the Food and Agriculture Organization of the United Nations (FAO). The FAO was mandated to raise levels of nutrition and standards of living, and improving agricultural productivity was an important means to this end. Today, agriculture is still seen as one of the foundations of national development.

Over the past 55 years evidence has mounted showing that agricultural productivity is a powerful force for poverty reduction and economic development. In recent decades, however, a wide range of factors has hampered growth in agricultural productivity in the least-developed areas. These factors include underinvestment in agricultural research and development, irrigation, rural infrastructure, and education, as well as the inability of poor farmers to get access to rich-consumer markets, whether in the developed or developing worlds.

The pathways through which agriculture affects nutrition are well documented. Improved nutrition in turn supports the agriculture sector by enhancing rural people's ability to undertake the strenuous tasks involved in small-scale farming. The links between improved nutrition status and improved work capacity and productivity are clear.

Yet to enhance agricultural productivity and incomes, the agriculture sector must pay even more attention to nutrition. This increased attention to nutrition by the agriculture sector ensures a greater focus on the consumer, which is good for agriculture from both a public goods standpoint and a private goods standpoint.

Raising Agriculture's Impact on Poverty and Malnutrition

As the conceptual understanding of food security and nutrition has deepened beyond food production, the agriculture sector has come under increased pressure from governments in the north and south to demonstrate its impact not only on food output, but also on poverty and malnutrition. If agriculture can increase its antipoverty and nutrition benefits, it will likely garner greater support as an important public good. This increased support is likely to lead to significant private returns to small-scale farming via technology spillovers from improved research and development.

Agriculture has already had a strong impact on poverty and malnutrition. The efficient, low-cost production of

food staples such as cereals is obviously in the interest of the poor. Because food staples constitute such a large percentage of people's food purchases and overall expenditures, any reduction in their market price will result in increases in disposable income. The largest relative increases in income will accrue to those who spend the highest percentage of their income on food—typically the poorest—who can use these increases to purchase a greater range of foods. In high-poverty areas, there will be a stronger demand for low-priced food staples from those households that are net food consumers. Some of the income generated by efficient staple crop farmers will be plowed back into the local nonfarm economy, which is of benefit to the wider community of consumers.

But is the nutrition impact of lower staple food prices overcome by higher prices for nonstaple foods? Some countries have seen rises in the real prices of vegetables, fruits, and animal products over the past 25 years. These foods are particularly rich in micronutrients and other substances that are crucial to good health and human development. Are these price increases the result of insufficient investment in agricultural research and development in these products? Or are they the result of some other supply side constraint? In the absence of a nutrition lens, these price trends might not be thought significant. In the presence of a nutrition lens, agricultural practices and policies can be examined to determine if agriculture can have a larger role in reducing micronutrient deficiencies and malnutrition.

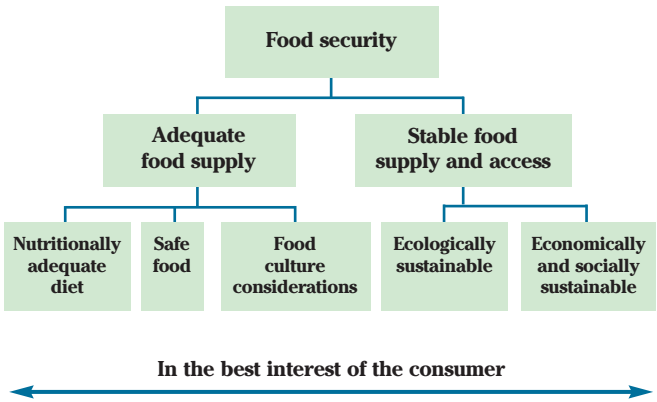
Technological changes that enhance the nutritional content of food can also be of benefit to the poor. However, much will depend on whether improved foods retain other consumption traits (storage, cooking, taste, etc) that are important to the poor, and whether they are more costly or not.

Increasing Farmers' Ability to Meet Changing Consumer Demands

By seeking closer collaboration with nutrition, agriculture can gain new insights into the needs of its primary customer, the consumer, whether poor or rich. This approach is, of course, consistent with the private returns that motivate farmers. The 1996 World Food Summit definition of food security creates the space for increased collaboration between agriculture and nutrition. The definition is: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."

The definition also strengthens the focus on the needs of consumers across different dimensions: cultural (preferences), health (nutritionally adequate diet and safe food), and sustainability. This demand-driven perspective can be visualized as shown in Figure 1.

FIGURE 1 — FOOD SECURITY: A COMMON GOAL FOR AGRICULTURE AND NUTRITION



Source: Definition of food security as used by the Royal Norwegian Ministry of Agriculture, adapted from A. Oshaug, W. B. Eide, and A. Eide, Food, nutrition, and human rights, conference paper for World Health Organization/Food and Agriculture Organization of the United Nations (WHO/FAO) International Conference for Nutrition, Nordic School of Nutrition/Norwegian Institute of Human Rights, University of Oslo, 1992.

But consumers also demand variety in their diets. Driven by various imperatives—taste, prestige, personal identity, nutrition, and safety—consumers want access to a wide range of foods. If farmers are to sustain their ability to generate income for themselves and to increase disposable income in the wider urban and rural economies, they will need to respond to these demands in a timely way. A nutrition focus will help them to do that.

As people's incomes go up, their demand for fruits, vegetables, and animal products increases dramatically. This rise in demand is due to a combination of income growth and shifts in taste preferences that accompany aging and increased urbanization. At low levels of consumption, increased intake of these products, which are rich in micronutrients, is consistent with improved nutrition status. Deficiencies in various minerals and vitamins, such as iron, iodine, folic acid, and vitamins A and D, are widespread in poor areas, and the consequences of these deficits are especially serious for infants, children, and women. The nutrition community should be seen as an ally of agriculture in indirectly stimulating demand for variety in the diet by directly stimulating the demand for micronutrient-rich foods.

As incomes increase, high consumption of fats, sugars, and salts becomes an important risk factor associated with noncommunicable diseases such as coronary heart disease, diabetes, hypertension, and some forms of cancer. The demand for dairy products low in fat, leaner meat cuts, fresher fruits and vegetables, and more unsaturated oils will increase. Again, the nutrition community should act as a leading-edge ally by forecasting trends in consumer preferences rather than as an enemy in the battle to meet changing consumer preferences.

Consumers at both low and high income levels demand food safety. Food safety standards have the potential to be an insurmountable barrier to connecting small farmers with wealthier consumers, whether in large domestic markets in the developing world or in the developed world. Developing and complying with food safety standards (including biosafety standards for genetically modified crops) requires resources and capacity. The agriculture community should tap the nutrition community's ability to develop food safety standards that are sensible given the other dimensions of a country's food security needs.

Consumers also have preferences for some foods that are produced locally. This preference is often explained not by economics, but by culture. The agriculture community must be aware of these preferences if it is to maximize its connection to consumers and its profits. The nutrition community has longstanding expertise in mapping the diversity of available indigenous foods, and the agriculture community should develop partnerships to tap into that expertise.

The issue of the sustainability of a nutritionally adequate food supply often comes up in the context of indigenous systems, but it is applicable to all aspects of food security demanded by consumers. Consumers do not want to feel vulnerable to the loss of such a food supply, and small farmers do not want to be vulnerable to an exhaustion of the source of their livelihoods. Both groups have incentives to work together to improve the sustainability of food systems that meet food preferences.

Increasing Collaboration between Agriculture and Nutrition

If the potential payoffs to collaboration are large—improved impact on nutrition and improved profits for farmers—why are there so few examples of effective collaboration? Part of the problem lies with the fact that although nutrition cuts across sectors, it is

often placed within a line ministry—typically the Ministry of Health. In the absence of strong incentives to develop cross-ministerial policies and programs for food and nutrition security, sector-specific homes for nutrition will end up favoring one pillar of good nutrition at the expense of the others. This tendency to "departmentalize" nutrition is reinforced by the structures of external funding agencies, which often mirror the departments of government, and by training programs in schools, universities, and vocational settings. A monodisciplinary approach is fixed in place by conceptual frameworks that equate food production with food security or equate nutrition with food security, sanitation, or behavior change rather than emphasizing the interaction of food, health, and care—all pillars of good nutrition. Most institutions have clearly not internalized the latest generation of conceptual frameworks.

Food and nutrition councils that bring together line ministries, such as the ministries of agriculture, health, social affairs, and finance, have been successful in a few instances, typically under a very specific set of circumstances. More countries need to experiment with innovative arrangements and apply state-of-the-art conceptual models of food security and nutrition.

Conclusions

Increased attention to nutrition can enable the agriculture sector to better meet its own needs in many ways. It can enhance the antipoverty and nutrition impacts of agriculture and ensure greater support for agriculture as an important public good. This increased support is likely to lead to significant private returns to small-scale farming. Increased attention to nutrition can also help farmers anticipate and meet the needs of consumers. The question is therefore not whether there should be close interlinkages between agriculture and nutrition, but rather how to best achieve a fruitful marriage. Clearly, what is essential is a common goal or conceptual vision to guide both agriculture and nutrition in policymaking, strategy development, and institutional innovation so that those commonalities can be realized for the benefit of poor consumers and poor farmers.

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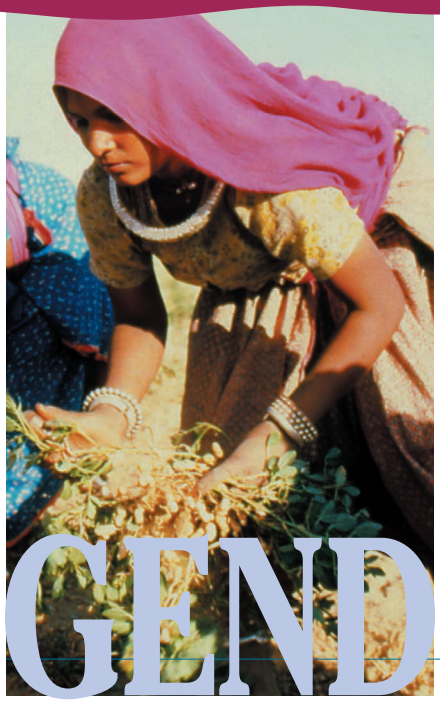

GENDER

Nutrition and Gender

RUTH ONIANG'O AND EDITH MUKUDI

Brief 7 of 12

The socially constructed gender roles of men and women interact with their biological roles to affect the nutrition status of the entire family and of each gender. Because of women's cyclical loss of iron and their childbearing, their nutrition status is particularly vulnerable to deficiencies in diet, care, and health or sanitation services. Moreover, the nutrition status of newborns and infants is intimately linked with the nutrition status of the mother before, during, and after pregnancy.

Women typically have limited access to land, education, information, credit, technology, and decisionmaking forums. They have the primary responsibility for child rearing and rely on developed social networks that act as an informal safety net for the family in times of crisis. When involved in formal employment, they typically command lower remuneration rates than their male colleagues, even when they hold the same skills. Because of their triple burden of productive, reproductive, and social roles, women also tend to have less time to attend to their own needs, leisure related or otherwise.

Poor female nutrition early in life reduces learning potential, increases reproductive and maternal health risks, and lowers productivity. This situation contributes to women's diminished ability to gain access to other assets later in life and undermines attempts to eliminate gender inequalities. In essence, women with poor nutrition are caught in a vicious circle of poverty and undernutrition.

Gender Inequality Is Bad for All

Inequities in access to and control of assets have severe consequences for women's ability to provide food, care, and health and sanitation services to themselves, their husbands, and their children, especially their female children. Women with less influence or power within the household and community will be unable to guarantee fair food distribution within the household. These women will also have less ability to visit health clinics when their infants and children are sick and to spend time interacting with their infants and other children.

Any reduction in gender asymmetries benefits the entire family. Substantial evidence demonstrates that more equal access to and control over assets raises agricultural output, increases investment in child education, improves visits to health facilities for infants, raises household food security, and accelerates child growth and development. It also offers important economic payoffs for the entire society. Women's contribution to food production, food preparation, and child care are critical underpinnings for the social and economic development of communities, yet efforts in this direction are hampered by malnutrition.

Furthermore, malnutrition in women contributes significantly to growing rates of maternal deaths and is directly related to faltering nutritional status and growth retardation in children. Maternal malnutrition has been linked to low birth weight, which in turn results in high infant morbidity and

mortality rates, adding to health care costs and undermining the human resource potential for an economy. It is also now clear that fetal malnutrition harms health status in later life, and in fact predisposes one to increased incidence of noncommunicable diseases. In addition, malnutrition in mothers jeopardizes the quality of care giving they can offer their children by reducing the meaningful mother-child interaction that is necessary for proper growth.

Women's socioeconomic and nutritional status is critical for protecting themselves, their children, and the entire society from HIV/AIDS and other infectious diseases. The magnitude of the impact of the HIV/AIDS pandemic in Sub-Saharan Africa is beyond comprehension. A 1998 estimate put the world prevalence of HIV/AIDS at 32.2 million adults and 1.2 million children. HIV/AIDS has huge implications for the performance of the female labor pool. Proper nutrition would improve the quality of life of those infected with the virus by boosting their immunity, given the low serum micronutrient levels established in HIV/AIDS victims. Proper nutrition will also decrease women's susceptibility to opportunistic infections such as tuberculosis— the number one killer of women in their prime of life—whose prevalence has been accentuated by HIV/AIDS. Finally, improved women's status via improved nutrition status in childhood and during adolescence will enable women to stem the spread of HIV/AIDS through more productive choices facilitated by better life opportunities.

Improving Female Status by Improving Nutrition

Improvements in the nutrition status of girls, adolescent females, and women make it more likely that the cultural constraints facing women will be relaxed as the advantages of investing in their human capital become apparent. Better-nourished girls are more likely to stay in school and to learn more. They will miss fewer days to illness and be more attentive when in class. They will grow up to become more productive economically and more aware of the various livelihood options. They will become more empowered to make decisions in all spheres of activity, including parenting. They will have greater control over their sexuality-related choices—crucial for controlling family size and preventing HIV/AIDS. In addition, future generations—male and female—will benefit from such a human capital investment via improvements in nutrition status transmitted throughout the life cycle.

Good nutrition in infancy is a necessary condition for the development of human capital. The possession of human capital facilitates access to other types of capital—physical (such as farm equipment), natural (such as land and water rights), financial (such as microfinance services), and social (such as access to community associations). The possession of human capital is crucial for economic development and sustained human development. Incorporating nutrition components into policies and programs to improve women's status will increase the likelihood that such efforts will reap benefits not only in the medium term, but also for the next generation. Increasing the gender-sensitive nutrition content of public policy that seeks to improve the status of women will make such improvements more sustainable.

Interventions to Improve Nutrition Status of Females

The nutrition community has learned a great deal about what works in an operational sense to improve the nutrition status of newborns, infants, and children. Until recently, less attention has been devoted to finding operationally effective interventions to improve the nutrition status of adolescent girls and pregnant women. Improving the nutritional status of girls and women hinges on applying the success stories seen so far and improving on existing programs to strengthen their potential for success.

Micronutrient deficiencies afflicting girls and women can be addressed through balanced and long-term supplementation to build up stores for meeting acute deficiency needs. Gender-sensitive nutrition education is also needed to sustain good dietary practices. It is within the mandate of the nutrition community to develop a better nutrition intervention toolkit to address the special needs of girls, adolescent females, and pregnant women. These programs need not be expensive; iron supplementation programs for expectant

mothers and iodine fortification of salt have worked well in a number of situations. Iron supplementation could also be used for girls and women of reproductive age as a preventative approach before pregnancy. To accelerate this development, the community needs to build on the experiences of the network of experts and practitioners who work with adolescents in all dimensions of welfare—not necessarily in nutrition—to develop not only effective nutrition interventions, but also feasible delivery mechanisms.

Among more indirect efforts to improve the nutrition status of females, ensuring food security at household level is an important first step. Access to food of good nutritional quality at all times should be the primary focus in programming. Measures to ensure equal access to food for males and females, especially for those facing chronic or transitory food insecurity, should focus on the more sustainable options as well. Such options include the development and promotion of fast-maturing crop species and more drought-resistant varieties.

An example of a community-based food security intervention that has yielded positive nutrition results for women is the Helen Keller home garden program, first applied in Bangladesh. This program has contributed to increased food availability and enhanced nutritional status, especially micronutrient status, of women and girls in participating households. By enhancing incomes, this food security program has also helped empower women economically.

Another important indirect investment to improve the nutrition status of girls and boys is improving female access to education. Not only does education improve literacy rates, but it also lowers fertility rates and enhances the chances that girls will participate in the economy at a higher level. It also ensures that girls have good caregiving skills and will help them achieve better nutrition for themselves and their future children.

Partnership between the Gender Community and the Nutrition Community: A Win-Win Proposition

The efforts to improve women's nutrition status will be most powerful if undertaken in conjunction with public policies and

TABLE 1—STRENGTHENING PUBLIC POLICY ON WOMEN'S STATUS BY INCREASED ATTENTION TO NUTRITION

Determinant of nutrition	Policy to improve status of women and example of nutrition component	
	Create a level playing field	Promote catch-up in women's status
Basic *(such as incomes, legislation)*	Reform legislation to equalize rights: civil, political, economic, social, and cultural *(for example, monitor male-female differences in infant nutrition status)*	Target access to new resources to women *(for example, include a nutrition component in credit programs directed to poor women to ensure that current improvements in women's status do not come at the expense of the nutrition of infant females)*
Underlying *(such as food security, health systems, child care)*	Reform service delivery *(for example, equalize access to water and sanitation services and agricultural extension services)*	Use cash transfers to promote the entry of girls into nutrition and health care systems
Immediate *(such as diet, infection)*	Reform health service delivery *(for example, equalize immunization rates and access to preventative and curative health care; introduce flexible working hours and crèches for working mothers)*	Use subsidies to promote child-care crèches to allow working women to provide their children with a good child-care substitute

Source: Adapted from UNICEF, The state of the world's children 1998 (New York: Oxford University Press, 1998), p. 25.

programs that aim to improve the status of women and to address gender inequalities. How can these policies incorporate nutrition components? As outlined in Table 1, public policies that aim to improve women's status can promote gender neutrality either by creating a level playing field in hopes that women will catch up or by actively seeking to promote catch-up. Table 1 also outlines examples of how to incorporate nutrition components into these policies (organized by the immediacy of the intervention for nutrition status).

Conclusion

Gender inequality in access to and control of resources not only is unfair to women and their children, but also constitutes bad economics. It results in the misallocation of scarce resources, increased health care costs, lowered productivity, and poor human development trends. Investment in the nutrition of women is an important short-term barometer in assessing expected returns to improving household nutrition and overall human development capacity for a country.

Targeting to improve the nutrition status of girls and adolescents will help to ensure that women's status improves throughout the life cycle. Given the already susceptible situation of women and girls in developing countries, attempts to improve the overall status of women should work hand in hand with attempts to improve the nutrition status of female girls, adolescents, and adults. Incorporating gender-sensitive nutrition components into policies and programs that aim to improve women's status will enhance both the expected short-term and long-term results of the programming efforts. Improvements in nutrition status of female infants and children will translate into the improved human capital of their adolescence, the empowerment of their adulthood, and the development of their communities.

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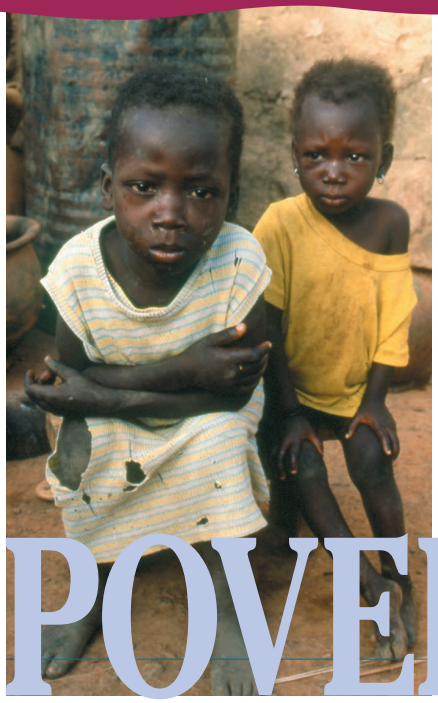
Suggested citation: Ruth Oniang'o and Edith Mukudi, "Nutrition and Gender." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.



Nutrition and Poverty

LAWRENCE HADDAD

POVERTY

Brief 8 of 12

Malnutrition is responsible for much of the suffering of the peoples of the world. At least one-fifth of the worldwide loss of years of life to death and to disability is due to undernutrition. When more speculative estimates are made of the contributions of diet-related chronic diseases such as diabetes, obesity, and hypertension and the various components of undernutrition, some commentators place one half of global suffering at the door of malnutrition.

Why Is Public Action Needed?

The case for public action to eradicate malnutrition is a strong one, and one that can be forcefully made using either ethical or economic arguments. Public action to reduce malnutrition is a moral imperative. Food and nutrition are human rights, enshrined in various conventions (most recently the 1989 Convention on the Rights of the Child). Governments have a duty to ensure that these dimensions of human well-being are realized. On the economic side, private markets for health, education, sanitation, and other determinants of good nutrition are often thin and in any case are beyond the poor's reach. Moreover, access to whatever services are available is likely to be unequal, particularly along gender lines. Women—whose role is key to good nutrition throughout the life cycle—face discrimination in many parts of the world.

Nutrition is an excellent investment. Improved nutrition empowers people and it empowers communities. In doing so it fuels the development process and leads to poverty reduction.

Empowering People for Poverty Reduction

In a globalizing world, the premium on innovation and creativity is higher than ever, and malnutrition undercuts both in a most savage way. Better nutrition improves intellectual capacity, and improved intellectual capacity increases an adult's ability to access other types of assets that are essential for increases in labor productivity. An adult who is more productive has a larger set of available livelihood options, which raises lifetime private earnings in a way that is robust to external shocks such as disease, unemployment, or natural disaster. In addition, improved nutrition status from conception to 24 months of age reduces private and public health care expenditures in ways that reverberate throughout the life cycle. The intergenerational cycle of poverty is more likely to be broken when babies get an adequate nutritional head start.

No economic analysis can fully capture the benefits of such sustained mental, physical, and social development. At the micro level some cross-section studies have shown

that the ratio of the percentage improvement in adult wage rates over the percentage improvements in adult nutrition status is greater than one. Other studies over time have found that an increase in birth weight of one pound leads to a 7 percent increase in lifetime earnings for a sample of U.S. babies. How significant are these estimates at the macro level?

Some researchers have aggregated the literature on how fetal and infant undernutrition affects children's later school enrollment, educational attainment, cognitive ability, and lifetime earnings and the literature on how adults' nutrition status affects their labor productivity. In this way they have attempted to capture the economic costs of undernutrition in terms of gross domestic product (GDP) forgone. Estimates published in the 1990s for several Asian countries indicate that the losses to GDP from various components of undernutrition can be as high as 3 percent of national income (Figures 1 and 2). However, these estimates are undercounts: they omit some components of undernutrition such as vitamin A deficiency and some age groups such as adolescents; they are not aggregate estimates as we do not know how the various component estimates of undernutrition "add up" in terms of boosts to productivity; and they omit losses due to overnutrition.

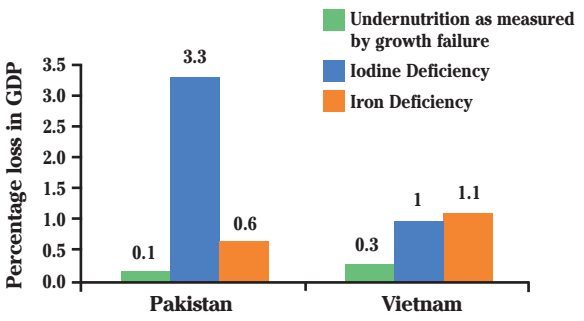
Diet-related chronic disease also has heavy costs. For China the costs amount to 2.4 percent of GDP (Figure 3). This, too, is a gross underestimate because it does not take into account the lost work due to illness, only death.

Investments in reducing fetal and infant malnutrition generate the ultimate positive spillover effect—well-nourished children who are less likely to get diet-related chronic diseases such as hypertension and diabetes in adulthood and well-nourished mothers who are less likely to give birth to undernourished children. Figure 4 shows the estimated link between fetal and childhood undernutrition and chronic diseases for China and Sri Lanka. For China, childhood undernutrition is estimated to be responsible for one-third of diabetes and about one-tenth of coronary heart disease and strokes.

Empowering Communities

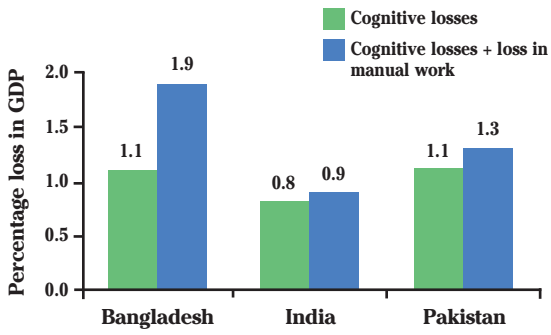
While better nutrition empowers people, the process through which malnutrition is reduced can also empower communities. Unlike most other types of human capital investment interventions, most nutrition programs are community based. As communities develop the capacity to undertake assessment, analysis,

FIGURE 1: GDP LOSS FROM REDUCED ADULT PRODUCTIVITY DUE TO SOME FORMS OF UNDERNUTRITION (1990S)



Source: Horton 1999

FIGURE 2: GDP LOSS DUE TO IRON DEFICIENCY (1990S)



Source: Horton 1999

and action for nutrition interventions, they can apply this capacity to other types of development intervention. Community-based nutrition programming can also build trust and a shared set of values and norms. These elements of "social capital" may well prove to be important for people's ability to generate income and manage risk. They may also help empower communities to hold increasingly decentralized governments to account and to empower the decentralized governments to hold the communities to their end of the bargain. Qualitative data from a number of studies suggest this is the case. Quantitative evidence from South Africa and elsewhere shows that social capital enhances people's ability to earn income and that community control helps improve the performance of poverty projects.

Moreover, empowered communities have more to lose from disruptions and conflict. Reductions in malnutrition serve to diminish one of the causes of conflict—particularly if those reductions are achieved through a community-led process. Conflict, whether civil or international, destroys people's lives, their asset base, and their livelihoods. Moreover, as countries become more connected than ever, instability in one country can quickly spill over to others.

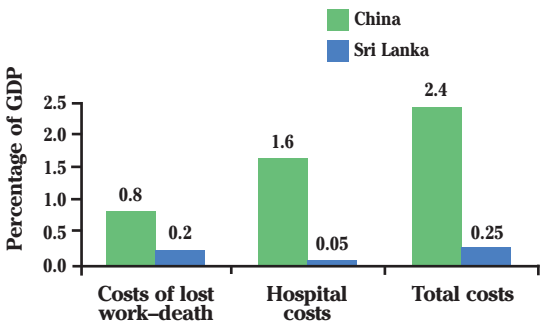
Conclusion

Improved nutrition is central to improved income generation, poverty reduction, and more rapid development.

Better-nourished individuals constitute the bedrock of a nation that respects human rights and strives for high labor productivity. Well-nourished mothers are more likely to give birth to well-nourished children who will attend school earlier, learn more, postpone dropping out, marry and have children later, give birth to fewer and healthier babies, earn more in their jobs, manage risk better, and be less likely to fall prey to diet-related chronic diseases in midlife.

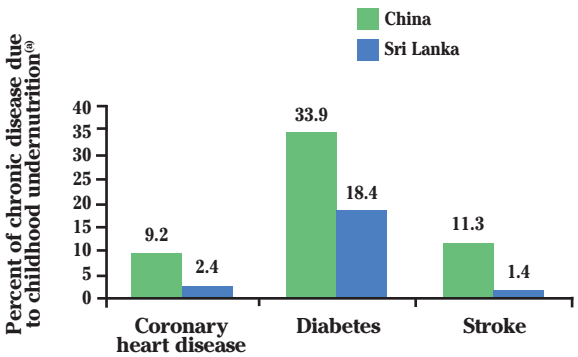
Communities that are strengthened through the community-based nutrition programming process are more likely to access central resources and are more

Figure 3: Economic Costs of Diet Related Chronic Disease, China and Sri Lanka, 1995



Source: Popkin, Horton and Kim 2000

Figure 4: Chronic Disease and Childhood Malnutrition China and Sri Lanka, 1995



Source: Popkin, Horton and Kim 2000

[a] Low birth weight and stunting

likely to use them efficiently in a wide range of activities while bringing their expertise to bear on the development process. Empowered and well-nourished communities are also less likely to be drawn into conflict with all its tragic consequences. In an increasingly interconnected world, the premium on good nutrition is higher than ever.

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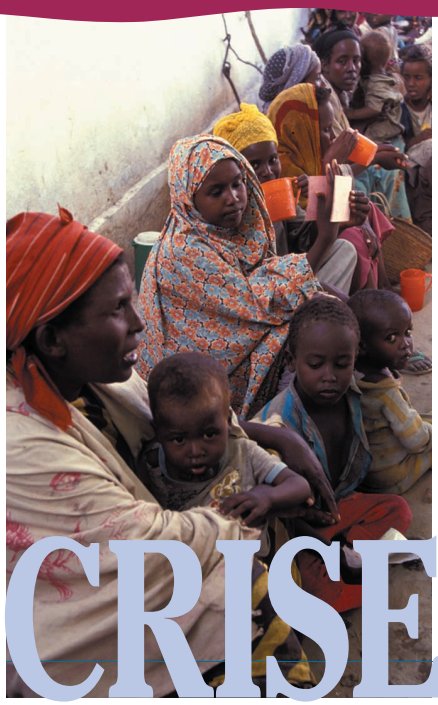

Nutrition and Crises

TOM MARCHIONE

CRISES

Brief 9 of 12

In the past 15 years food insecurity, malnutrition, and disinvestments in health systems have contributed to increasing national crises and made countries more vulnerable to systemic shocks. Over this period the world has experienced an alarming increase in costly humanitarian disasters that have tragically affected millions of people each year. Shocks have included violent internal conflicts; natural traumas such as droughts and hurricanes; economic shocks; and the surging HIV/AIDS epidemic. The greatest numbers of affected people have been those uprooted by war and natural disasters, which doubled from 20 million in 1985 to 40 million in 1994 and remained over 35 million in 1999, and those living with HIV/AIDS, which increased from only a few million in the early 1980s to 34 million in 2000.

Besides causing terrible suffering and death, these crises have caused many developing countries to suffer serious economic and food production setbacks. Global expenditures for humanitarian crisis interventions have grown while official development investment has stagnated or declined, adding to the drag on development. For instance, from 1985 to 2000 the World Food Programme shifted the balance of its program toward emergency response and away from sustainable development of food security and nutrition.

It is now time to invest in nutrition as a tool for crisis prevention, mitigation, and management for three reasons:

1. Good nutrition relieves the social unrest underlying violent conflict;
2. Good nutrition decreases the human vulnerability that transforms systemic shocks into humanitarian disasters; and
3. Good nutrition lowers the death rate and promotes timely return to equitable and durable development in the aftermath of crises.

Nutrition Problems as a Cause of Conflict

Studies of "state failure" show that the most powerful predictor of future conflict within a country is an infant mortality rate above the global median. This is not because infant deaths per se cause conflict but because infant mortality is the single most efficient variable for reflecting a country's overall quality of material life. In fact, a group of variables causing mortality, such as malnutrition, poor health care, and lack of education, would be just as predictive. As nutritionists know well, more than half of all child deaths in the world each year are associated with poor nutrition. And just as for conflict, the key basic and underlying causes of malnutrition are scarce resources mediated by faulty political economic systems that limit food availability and equitable access to food, education, and health care. Basic causes of malnutrition are similar to the basic causes of conflict—they involve violation of basic human rights and the state's unwillingness or inability to distribute resources equitably.

CRISES

Food insecurity is usually implicated in conflicts arising from competition over scarce, depleted, or poorly distributed resources such as land and water. Deteriorating ecological relationships and lack of agricultural inputs push land productivity to its limits, forcing farmers to compete for scarce resources with other ethnic groups in both rural and urban settings. Ethnic conflicts subsequently arise against a backdrop of struggle over scarce food or other components of livelihood, often in a context of political manipulation and state failure. In the poorest countries food production not only supplies needed food, but is also a major source of income and livelihood. Under conditions of poor food security even food-producing households often have inadequate access to food. Affected groups become ripe for rebellion when given the opportunity, even if it involves lending their support to spurious causes and predatory elite forces. In the long term, malnutrition causes conflict, and conflict in turn delays nutritional improvement, undermining productivity and deepening poverty and political instability, thus furthering the invidious spiral.

Nutrition and Vulnerability to Shocks

Not all crises turn into humanitarian disasters. The key is human vulnerability, which is the difference between the intensity of a shock (or hazard) and the capacity of the society to cope with it. When a crisis hits or an emergency develops over time, the degree of initial malnutrition and the intensity of its underlying causes are sensitive measures of the level of suffering and death that people will experience. When a population's underlying nutrition is poor before the crisis, the limited nutritional stores of young children are soon depleted, increasing their risk of severe malnutrition, disease, and death. Crisis can also provide an opportunity for underlying micronutrient deficiencies to tip over into outright conditions such as scurvy, pellagra, and beriberi, as has frequently been the case in Eastern Africa and other disaster areas.

Crises are amplified by the impact on the underlying causes of malnutrition: food insecurity, poor health systems, and poor interpersonal caring. Food-insecure, marginal agricultural areas faced with drought, high winds, floods, or shocks from global financial markets are highly vulnerable to the cycle of humanitarian disaster and poor nutrition. People in poor and food-insecure countries are four times more likely to die in natural disasters. Conflicts and drought in the Horn of Africa or the economic shocks in Indonesia in the 1990s triggered famine and violent conflict and led to millions of deaths of noncombatants. In contrast, Hurricane Mitch caused less political instability, population dislocation, and human suffering in Central American countries in 1998 probably because of better baseline food security.

Nowhere is the synergy between infection, poor nutrition, and high mortality more clearly demonstrated than in disasters. In a crisis, deaths due solely to food shortage are often less common than deaths from diseases that kill because of increases in disease susceptibility due to malnutrition. Poor health conditions in a society, including poor water supplies and poor health care infrastructures, become a deadly prescription for disease and death in a crisis. Inadequate water, sanitation, and shelter systems magnify public health crises common under conditions of displacement and distress migration.

Also, the ability of households to provide the necessary care for good nutrition is undermined in a crisis. Uprooted and fragmented households are seriously challenged to care for their members, and wherever caregivers are initially ill informed on the benefits of infant feeding practices under stress and in illness, their vulnerability to crisis is higher.

Because the initial nutritional condition of the affected population is critical in famine prevention and disaster mitigation, policy choices that improve nutrition will reduce famine vulnerability. Such policies include reducing crop and livestock production risks, stabilizing food prices, lowering employment and income risks, and lowering risks to health. They also include improving baseline birth weights and at a minimum the general nutritional status and micronutrient nutrition of children and mothers. These

steps should be viewed not only as strategies for reducing crisis vulnerability, but also as morally right public actions that are beneficial for economic development.

Nutrition in the Management of Crises

Closer attention to nutrition as part of early warning, relief, and rehabilitation efforts can help improve management of humanitarian disasters.

Early warning systems have become much more effective in recent decades because of careful attention to indicators of food insecurity and the basic causes of malnutrition. For instance, the early warning of the Ethiopian and Kenyan drought in summer 2000 led to an early response that helped avert a famine of the magnitude experienced in the mid-1980s, when more than 1 million died. Although nutritional status itself is a trailing indicator for early warning purposes, nutritional surveillance can pinpoint geographic areas that are more vulnerable to crisis and stimulate and target programming.

All relief efforts should include plans for protecting or reestablishing the sustainable food and livelihood security of the affected groups when the crisis subsides. In the worst-case scenario, food-insecure populations facing a crisis embark on a series of deleterious coping responses ranging from degrading their diets and eating their seed to selling productive assets and finally abandoning their homes in search of food. Nutritionally depleted and destitute families arrive at central locations with children and other individuals requiring immediate therapeutic feeding. Relief agencies require ongoing information systems and institutional capacities to prevent such scenarios. Frequent and appropriate provision of adequate food is a most important measure. Otherwise, agencies face not only the management of costly feeding in camps for refugees or internally displaced persons, but also formidable problems of resettlement and reestablishment of livelihoods before normal economic conditions can resume. Such conditions can also increase chances of relapse into crisis, and substantial lapses in nutrition support to pregnant women, infants, and young children can damage the long-term human capacity of the population for mental and physical work.

Inappropriate provision of relief, however, can have adverse political and economic effects, contributing to the crisis because of undersupply, oversupply, or misuses of food aid. Consequently, relief efforts should include proper initial assessment and periodic monitoring of the needs and uses of food in relation to other livelihood needs and an analysis of the opportunities and risks involved in providing only food. Indicators such as weight-for-height (wasting) of children under five should be used to monitor the situation in order to predict the risks of death and the progress of the relief effort.

In planning, relief, and rehabilitation phases, it is critical that crisis management include trained nutritionists, preferably local professionals of both genders, to manage the nutrition situation. Such persons should direct assessments of the extent and causes of malnutrition, estimate the size and mix of food rations according to international standards, promote protective behaviors such as breastfeeding, and advocate with relief agencies and donors for the most appropriate food assistance programming and policies for the full duration of the emergency operation.

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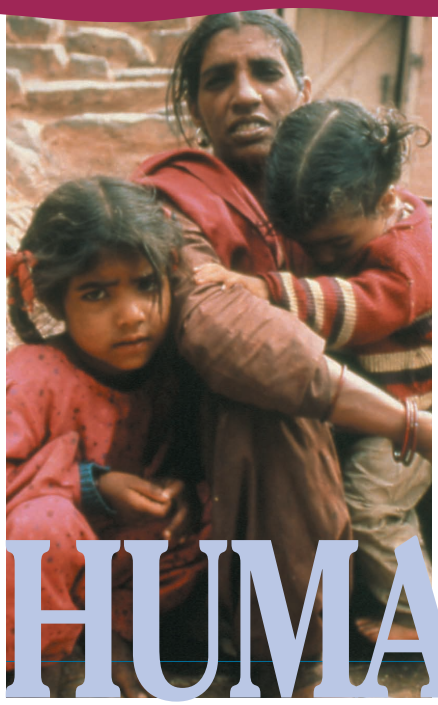
Suggested citation: Tom Marchione, "Nutrition and Crises." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.



Nutrition and Human Rights

WENCHE BARTH EIDE

HUMAN RIGHTS

Brief 10 of 12

The system of international human rights principles, agreements, and institutions offers a new opportunity for promoting development goals and policies with lasting effects for the individual human being. Many members of the international nutrition community now also see international human rights provisions and institutions as a potent new context in which to formulate and implement nutrition policies and programs. They have begun to assert the obligation of states to promote the human rights to adequate food, health, and care for the vulnerable—those areas that the nutrition community has established as primary to ensuring nutritional well-being. They also recognize that a range of other human rights—civil, political, economic, social, and cultural—must be implemented to allow rights to food, health, and care to be realized on a sustainable basis.

To date, nutrition advocates interested in exploring human rights have focused on how they can use human rights law and institutions more systematically to underpin efforts aimed at bettering human nutrition, as a moral imperative and as a precondition for sustainable social, economic, and human development. This goal is in line with the United Nations Charter, the Universal Declaration of Human Rights, and subsequent conventions on human rights derived from these. It constitutes the major message of recent literature on the right to adequate food in particular.

This brief considers the other side of the coin: how can the insights and tools of the socially oriented nutrition community help identify how human rights principles can guide development, enhancing sustainable positive effects for the human being and for society? By operationalizing and testing a human rights approach to food and nutrition in development, nutrition-relevant scholarship and practice has considerable potential to put content behind rhetoric regarding human rights, particularly economic, social, and cultural rights

How Can Nutrition Help Advance the Human-Rights-in-Development Agenda?

Human rights and nutrition advocates share a primary concern for the individual human being and an interest in the role of public action in supporting a full and active life of dignity for all human beings. Human rights advocates phrase this role in terms of state obligations to implement human rights, while the nutrition community works to evoke food and nutrition policy commitments.

There is vast potential for building bridges for increased potency and efficiency in both camps. Nutrition practice already draws heavily on general development thinking, and evolving concepts of economic, social, and cultural rights—the human rights of primary concern here—also intersect with modern development concepts and experience. So, many building blocks are already in place.

The following are some elements of nutrition practice, especially public nutrition, that are particularly relevant to human

conditions and rights (the list is not exclusive):

Nutrition data can reveal discrimination.

Perhaps the most fundamental principle of the international human rights system is that of nondiscrimination, as laid down in the Universal Declaration of Human Rights adopted and proclaimed by the United Nations General Assembly in 1948: "Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status." Subsequent human rights agreements have reiterated this principle.

Nutrition has the potential to unveil the biological outcomes of discriminatory practices. Nutrition research has shown, for example, that in poor societies where male offspring are more highly valued than female, girls and boys are subject to different feeding practices and food intakes. Potential exists for shedding light on discrimination in other areas as well, such as the health and nutrition situation of indigenous versus nonindigenous peoples and of ethnic minorities. A human rights approach will help ensure consideration of the treatment of such groups.

Nutrition science offers objective measures of human responses to development efforts.

Nutrition experts can objectively measure the human organism's response to various development actions affecting people's diets and other factors in their nutritional status, including general health status. Techniques range from early detection of biochemical changes in, say, blood and urine to observation of advanced clinical signs of disease stemming from malnutrition. In practice, the most common indicators are built on physical measurements of bodily growth and development, such as height and weight. Results do not necessarily reflect simple causal relationships; rather, causes may be immediate, underlying, or basic, revealing conditions at different levels of social organization.

While outcome indicators are important, so are indicators related to the processes that transform particular determinants at the various levels into people's good or bad nutritional status. Defining such indicators constitutes a considerable challenge, as does the assessing and monitoring of other economic, social, and cultural rights. Yet both outcome data and process data are indispensable for understanding why something happened or did not happen and who is responsible.

Nutrition programs can empower local individuals and groups.

In line with current development thinking, many nutritionists increasingly see full human development as their ultimate goal. Many national and international development agencies and nongovernmental organizations working in the field of nutrition are now building their efforts around principles such as participation and empowerment in program and project design, both as values in their own right and as tools for more effective and sustainable development arrangements. A human rights–based approach to development implies, by definition, a strong emphasis on participation and empowerment. The streamlining of these concepts into common development practice needs further refinement and practical testing, however, and there is considerable potential for nutrition to contribute to this refinement as well as to evaluate the outcome in objective terms.

Nutrition can reveal how different food systems are relevant to the right to adequate food.

Understanding food systems in a given sociocultural context may be essential for designing sustainable food production and marketing for adequate human consumption. The human rights approach demands attention to the cultural acceptability of food and to food systems that serve the interest of the consumer. When consumers' perceptions and claims are voiced and heard, they feed backward along the whole food chain and demand better performance at all points in that chain.

Human and household demands stemming from human rights other than the right to food may compete with what is needed to realize this right. People also need to attend to their housing conditions, make use of health services, and pay school fees, for instance, and these needs all make demands on the household economy or livelihood system. As human rights theory posits, all rights are interrelated and

interdependent. Thus the modern broad understanding of nutrition is well placed to operationalize and demonstrate certain human rights principles in practice.

In turn, a human rights approach would help more general development specialists to recognize that in many situations the connection between income and dietary adequacy is not linear, a recognition that may alter conventional expectations and program design at more basic levels, too. For example, a human rights focus on the consumer's right to adequate food, rather than an exclusive production or market focus, would necessitate rigorous testing of the common belief that subsistence farmers could easily and instantly achieve dietary diversity by switching to a cash economy. We know that, for one thing, the actual result would be closely tied to women's status, rights, and degree of control over income (since in many places women seem to favor using cash to provide food and health care for children more often than do men).

A human rights approach may thus have powerful analytical advantages over economists' technique of measuring quantities of unspecified food, often expressed in terms of "grain equivalents." Because people do not eat grain equivalents, the simplicity of these notions continues to frustrate the interdisciplinary debate between nutritionists and economists. A genuine human rights discourse could at least partly overcome this difficulty.

Nutrition policy experience can help identify state obligations in the right to adequate food.

Nutrition policy over the years has revealed many lessons that can contribute to thinking about policies to realize economic, social, and cultural rights. Clearly, for this to happen, nutrition policy principles must adapt to the now commonly accepted interpretation of these rights. To illustrate with the right to food: a common misconception is that this right obliges the state to hand out free food to anyone claiming the right. A well-founded normative framework now overturns this perverted notion and was most recently expressed in the "General Comment on the Right to Food" prepared and adopted by the U.N. Committee on Economic, Social, and Cultural Rights in May 1999. This authoritative document emphasizes that it is first and foremost the duty of individuals to find their own solutions to feeding themselves. In support of the individual's or household's own efforts, the state's first obligation is to respect the freedom of individuals in realizing their rights and to protect these rights against infractions by third parties. Only if action under these two obligations does not suffice must the state proactively fulfill the right, which may entail either facilitating the individual's or household's efforts to improve their resources and opportunities to feed themselves or, as a last resort for those who are completely unable to do so, providing adequate food directly.

Policymakers can then consider levels of obligation, or degrees of intervention, in conjunction with the elements contained in most current definitions of food and nutrition security, to help formulate more specific policies and programs to be pursued by the state at the various levels, in partnership with nonstate actors.

More to Be Done

Several areas must be better understood, operationalized, and tested before nutrition can fully serve in the frontline as a promoter of economic, social, and cultural rights.

First, nutrition data must be subject to full transparency. The nutrition development community often subscribes to a general respect for confidentiality as commonly practiced in development circles, in contrast to the full transparency that is a hallmark of the human rights approach. Since empowerment, as a principle of the human rights approach, is impossible without transparency in all public affairs, the nutrition community must insist on absolute transparency regarding all nutrition-relevant information at all levels.

Second, rights holders, whether individuals or groups, must have opportunities to claim their legal human rights related to the right to adequate food from the relevant duty holders, whether state or nonstate. Furthermore they must have the right to complain to appropriate institutions about violations of rights that are essential for their food security and nutritional well-being. The nutrition community can help develop or strengthen institutions to receive claims or complaints about noncompliance with the right to adequate food and nutrition. In turn the nutrition community will be able to draw on this new momentum for exposing malnutrition that may be due to

development mismanagement or, worse, that may have been generated by outright violations of the relevant rights.

The task of developing a framework law or a legal agenda for the right to adequate food and nutrition has just begun but is expected to advance significantly in 2002, especially in the context of several national seminars that will address the right to food in specific countries.

Concluding Remarks

For many in the nutrition community, nutrition advocacy means finding economic arguments to demonstrate the utility of promoting human nutritional well-being: human beings should be well nourished because that will repay society in the form of higher productivity, better learning capacity, and lowered health care expenses. There is nothing wrong with this argument when the purpose is to support allocations of scarce national or institutional budgets or to demonstrate how good nutrition contributes to improving efficiency and outcomes in other sectors. But for this utilitarian approach and a human rights approach to food and nutrition security to be made mutually supportive, nutrition advocacy should begin with the moral and legal imperative for the right to food, centered on human dignity, needs, and interests, and point to improved efficiency and outcomes as a premium. This approach will not only restore ethics and morality (as opposed to charity) to the professional nutrition debate, but also bring in the still unexploited muscle of legal provisions. The economics of nutrition must then be studied and articulated as far as possible in support of these goals.

If states would take an explicit human rights approach to adequate food, health, and care, it would likely accelerate the processes toward a rapid decline of food insecurity and the achievement of the goal of halving the number of hungry people by 2015. Such an approach would also enhance the role of international human rights as universal principles to guide overall development with a human face. Given that the majority of U.N. member states have already committed themselves to promoting and protecting the right to adequate food and nutrition by having ratified the relevant binding conventions under international law, there exists a basis on which to build to operationalize this commitment. However, the communication about what it would entail in practice needs to be improved. The nutrition community already has substantive arguments and accumulated experience that it must now bring more vigorously into that effort.

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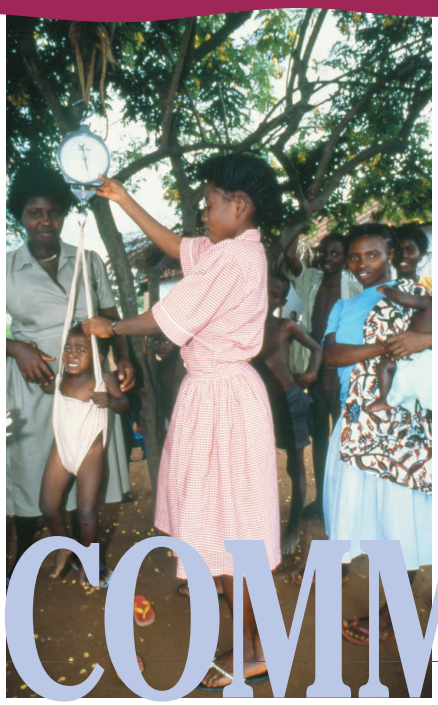
Suggested citation: Wenche Barth Eide, "Nutrition and Human Rights." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.



Nutrition and Communities

ROGER SHRIMPTON

COMMUNITIES

Brief 11 of 12

In the past decade or two, many countries have made fiscal, political, and administrative changes to promote more devolved, deconcentrated, and delegated forms of government. The rationale for this decentralization has been to facilitate more efficient and effective provision of public goods and services and to establish market-oriented economies in which the private sector can play a role in performing public sector tasks. During the 1990s, health sector reforms further emphasized the decentralization of health service delivery.

While decentralization has great promise for improving delivery of public services, its success depends on sound design and institutional arrangements. A key feature of success is political accountability at the local government level, but even that cannot ensure that the maximum benefits are always realized. Several recent reviews have revealed that a decentralized health system is not necessarily the most equitable and cost-effective. In Uganda the district-level planners have progressively allocated declining portions of their health sector budgets to the provision of public goods. In Switzerland it has proven difficult to achieve a cost-effective, well-balanced approach toward promotional, preventive, and curative services within the decentralized framework of regional government.

Nutrition has much to offer to improve decentralization efforts. If policymakers can couple the experience gained from successful nutrition programs to the decentralization efforts, they could greatly enhance the effectiveness of such service delivery mechanisms. Ensuring that preventive nutrition interventions are part of a minimum package of decentralized health services will also make them more effective. Regularly monitoring the nutritional status of the population as the principal indicator for evaluating decentralized delivery of health services will help achieve local political commitment to supplying public goods. The regular monitoring of the local nutrition situation will also help mobilize community resources for better nutritional outcomes.

Decentralization is an important ingredient for successful nutrition programs. National nutrition plans of the 1970s largely failed owing to the difficulties of coordinating multisectoral approaches at the national level. During the 1980s decentralization was consistently identified as a key ingredient of successful nutrition programs. Such successful nutrition programs, costing between $2 and $10 per beneficiary per year, achieved reductions in child malnutrition rates of at least 2 percentage points a year—a rate much faster than that achieved by development alone.

Local Growth Monitoring

One key element in successful nutrition programs is the use of locally constructed information systems that show people whether the nutrition situation in their communities and districts is getting better or worse. Most malnourished children look normal, both to their parents and to a bystander, until their size is compared with that expected for their age. The

"road to health" growth chart developed in Nigeria in the 1960s and incorporated into the child survival revolution of the 1980s has led to the universal adoption of children's growth charts and routine weighing of children.

Most successful nutrition programs have achieved a picture of the local nutrition situation by setting certain days, perhaps once each six months, once a quarter, or even once a month, when as many local children under five years old as possible are weighed. These weighing days allow nutritionists to periodically construct indicators showing how growth is improving in each community. This approach also allows nutritionists to detect the relatively few severely malnourished children that need special rehabilitational feeding. It is crucial that this child growth information be used for decision-making at the local level and not just sent to the capital to generate an annual report.

While progress in reducing malnutrition can be monitored through national demographic and household surveys, such surveys are too infrequent and are not representative at the district level. Instead, successful large-scale nutrition programs have linked the results of individual growth monitoring to community-level discussions on how to redeploy resources to resolve the problems. In Iringa nutrition programs in Tanzania, women set up community crèches where they could leave their children with one woman while they were performing agricultural work in the field. In Thailand and Tamil Nadu, India, growth monitoring was the screening tool used to select children for food supplements.

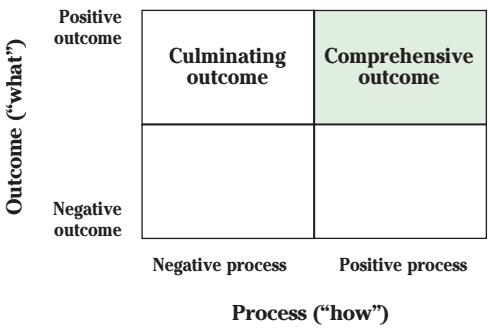
Although often effective in small-scale projects, growth monitoring has proven less effective in large-scale programs. An evaluation of six national programs supported by UNICEF revealed that although community workers could assess nutritional status well, their capacity to analyze the causes and counsel caregivers on the actions to be taken was rarely adequate. Measurement alone is not enough to generate action. The conclusions pointed to the need for more capacity building at the local level in order to be able to influence local decisionmaking.

Not Top Down or Bottom Up, but Both

Many development practitioners recognize that a combination of vertical and horizontal approaches provides the most sustainable and effective results. Unsuccessful nutrition-oriented programs have failed not because they lacked well-documented, scientifically proven technical interventions, but because they failed to fully mobilize and support local skills and resources. Successful nutrition programs require that communities commit their own resources, especially their time.

Amartya Sen makes the important distinction between "culmination" outcomes and "comprehensive" outcomes. Culmination outcomes ignore the process of reaching the outcome—that is, they achieve an end regardless of the means. Comprehensive outcomes consider the process of getting there. This two-dimensional nature of development programs is summarized in Figure 1. Both axes relate to the exercise of freedom, although of two different types. The vertical axis concerns the exercise of substantive freedoms: to be well nourished and free of hunger, to survive, and to develop. The horizontal axis concerns the process of achieving the outcome and is about participatory freedom: the freedom of choice in decisionmaking processes about what actions to take.

FIGURE 1—HORIZONTAL, VERTICAL, AND DIAGONAL APPROACHES FOR NUTRITIONAL PROGRAMMING



While vertical programs can rapidly achieve substantive freedoms, their sustainability will always be in question unless they promote the appropriate horizontal dimension. Horizontal approaches, on the other hand, often build capacity for its own sake, without linking to a positive substantive

outcome. Ideally, interventions should use both approaches. Over time the vertical and the horizontal approaches need to move toward each other and become diagonal. Diagonal approaches, which achieve both sets of freedoms, take longer but are more likely to be sustained.

Vertical programs can only take on board the more horizontal aspects of program delivery if they have sufficiently decentralized authority and responsibility. As programs become more participatory, they require that local authorities have the flexibility to negotiate with community members the outcomes being pursued.

Diagonal approaches for improved nutrition also require increased multisectoral coordination of service delivery. Agricultural services can be needed to help resolve food supply issues, sanitation services may be needed to provide latrines, health services are often needed to treat infections. When each service pursues community participation independently confusion often arises. Not only does one sector have to be able to respond to community demand, but also all sectors need to be harmonized to be able to better respond as a whole. In the absence of such coordination, efforts to promote community participation are likely to compete with each other and waste the time of the community, one of their most precious resources.

Nutrition provides the ideal outcome to achieve this marriage of horizontal community capacity building and vertical sectoral approaches. Nutrition is not the domain of any one sector, since nutritional improvements require the fruits of labor of many sectors. Nutritional outcomes can easily be made visible at the local level. The role of local government in promoting intersectoral coordination is thus critical for promoting diagonal approaches for improved nutrition.

The Continuum of Community Participation

Community participation is an important dimension of effective health and nutrition programs. Such programs have seen participation as a dynamic phenomenon. Participation can start with a very traditional welfare-type relationship in which the beneficiary is a passive recipient of a program benefit, and neither the family nor the community is involved in decisionmaking on how resources are invested. At the other end of the spectrum, both the beneficiaries and the community are actively involved in promoting and managing the program inputs and benefits and assessing impact. Methods for assessing the participatory nature of programs can be used to monitor and progressively promote the incremental shift of programs from achieving culminating outcomes to comprehensive ones. In order to achieve comprehensive nutrition outcomes, programs should aim to progressively amplify the substantive and participatory freedoms of community members, especially the poorest of the poor.

Capacity Building at the Local Level

Moving a program along the participatory continuum requires a dialogue with the community about the causes of malnutrition and the actions that can be taken. Successful nutrition programs have all employed community workers, or mobilizers, from the neighborhood of the target families to carry out these tasks. The ideal ratio is 1 mobilizer to 20 families. Facilitators, who provide initial training and then continuous supportive supervision, in turn support the mobilizers. The ideal ratio is 1 facilitator to 20 mobilizers. The role of mobilizers and facilitators is to help parents assess the adequacy of their choices affecting the growth and development of their children. According to the pedagogic approaches of Paulo Freire, poverty is often not just about lack of money, but also about poor choices. In order to rediscover the capacity to choose among the poor, Freire encourages looking for ways to improve decisionmaking within existing resource constraints.

Setting up the mechanisms for training community workers is no easy task and must be tackled in a decentralized fashion. The Care Initiative developed by UNICEF, for example, is designed to help facilitators promote community dialogue. The Care Initiative requires decentralized, locally specific approaches, including translation into local languages and adaptations to suit local customs and moral positioning.

To help train facilitators, UNICEF has proposed using a conceptual framework that

separates immediate, underlying, and basic causes of malnutrition. Perhaps the most important set among these causes for community dialogue are the maternal and child caring practices. Most of the decisions about caring practices are within the grasp of even the poorest of the poor. The potential for empowerment starts here.

Conclusions

The nutrition community has much experience in building sustainable participatory processes at the village or community level. These processes are essential if decentralization policies are to be successful.

Experience with monitoring outcomes, with developing diagonal approaches that show concern for the process as well as the outcome, and with building capacity at the local level is extensive and well documented.

Other sectors would do well to take advantage of these existing participatory processes by engaging with nutrition initiatives at the community level. Doing so would introduce the tantalizing prospect of jump-starting participatory improvements in nonnutrition indicators, such as mortality, that are less readily visible, while simultaneously reinforcing participatory attempts to improve nutrition.

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Suggested citation: Roger Shrimpton, "Nutrition and Communities." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.

Nutrition and Politics

DAVID PELLETIER

POLITICS

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Good nutrition can lead to an impressive range of benefits. From the perspective of human capital, these include improved health, cognitive development, and work capacity. From a development perspective, they include greater economic and agricultural productivity, better education, and improved workforce development, as well as greater resilience to shocks induced by social, economic, and natural causes. The evidence suggests that these benefits can be achieved at high levels of economic efficiency for a wide range of nutrition policy instruments. Moreover, there are compelling normative (human rights) arguments for actions to improve nutrition, backed up by a growing international consensus on the right to food. Together, these benefits support humanitarian, development, and normative arguments for addressing nutrition.

While these arguments have strong appeal for many people committed to equitable development in poor countries, fundamentally they are policy arguments, and they emanate from that portion of the development community already committed to nutrition. With the possible exception of the human rights theme, in their present form they do not constitute a set of political rationales and strategies. As such, they may not be as effective as they could be for motivating policy change. In translating sound policy arguments into effective political rationales and strategies, development practitioners must think in explicit political terms without abandoning their commitment to the ultimate nutrition goals.

Policy Entrepreneurship

Politics refers to the social processes that determine the allocation of benefits and burdens across social groups and interests. Effective political rationales are created by analyzing how various policies may distribute, or be perceived to distribute, valued benefits and burdens across influential groups and interests. These groups and interests can exist at the national (and international) level, within organizations, and within communities. Effective political strategies are created by analyzing the current social processes and contexts that shape the formation, implementation, and evaluation of specific policies.

When the Government of Malawi established a national Food Security and Nutrition Unit in the Office of President and Cabinet in 1987, the nutrition community in that country welcomed it as a positive step toward addressing the alarmingly high rates of chronic malnutrition and child mortality. This step was actually quite surprising, given the lack of attention devoted to nutrition during the previous decades. Although establishment of this unit was preceded by many years of nutrition advocacy by national and international institutions, it was precipitated by economic decline and conditions imposed by aid donors in the 1980s. The nutrition advocacy that preceded and accompanied the creation of this unit was instrumental in adding

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"nutrition" to the agenda and title of this unit, but the larger political and contextual factors created the window of opportunity for this to occur. The nutrition policy entrepreneurs active at that time recognized and seized this opportunity.

This example illustrates a common pattern within countries, organizations, and communities. Alert change agents or policy entrepreneurs are able to recognize or even catalyze the convergence of problems, policies, and politics at a particular moment and thereby increase the attention paid to nutrition or other development goals. At times this convergence can propel a rather broad and general agenda (such as "nutrition"), and at other times it can propel a highly specific issue within that agenda (such as breastfeeding promotion, micronutrient interventions, or improved targeting of supplementary feeding). The chances of success are much greater when these entrepreneurs pay close attention not only to the soundness of the nutrition arguments but also to their compatibility with the goals and interests of other actors and organizations (that is, to politics).

A "split-screen" approach is a useful metaphor to help translate sound policy arguments into effective political rationales and strategies. One screen contains the nutrition- or development-related goals, outcomes, and policy arguments, representing the worldview of one part of the development community; the other screen contains a variety of other actors, interests, and institutions, representing a more political worldview. (The term "politics" as used here refers to the relationships among a wide variety of actors and institutions, of which elected officials are but one category.) In viewing the political screen, development practitioners must temporarily suspend their own values, beliefs, and logics in order to discern a broader range of relationships, arguments, and possibilities for promoting their agenda. A politically viable rationale and strategy for improving nutrition emerges by "toggling" back and forth between these two screens, attempting to view the issues simultaneously through two very different lenses. This concept of toggling is important because it prevents the nutrition goals from becoming lost completely in the pursuit of political feasibility.

Benefits and Burdens

Influential groups and interests typically perceive policy benefits and burdens that are quite different from those perceived and promoted by development practitioners. For instance, many groups with strong political influence become animated by the inputs associated with policy change, as opposed to the outcomes that animate development practitioners (such as improved health, cognition, and productivity). Inputs associated with nutrition policy might include:

- food aid, valued by local politicians, residents, and many others
- construction contracts (such as for water systems)
- sector loans, valued by ministry officials
- health system reforms, valued by professional health associations
- training opportunities, workshops, and per diems, valued by staff
- employment in the public sector or nongovernmental organizations (NGOs), valued by job seekers
- program budgets, valued by program managers
- mass media education campaigns that implicitly promote the sponsoring organizations

The difference between the two views suggests that an effective political rationale often should be constructed by identifying the connections between policy inputs (as perceived and valued by influential groups and interests) and policy outcomes (as desired by development practitioners). These connections typically vary widely across diverse groups and interests and across diverse policy options, and the analysis needs to be conducted at that level of specificity. One danger to guard against is goal substitution, in which the political interest in maximizing access to valued inputs completely displaces concern for larger policy outcomes such as nutrition.

Social Processes and Context

As already noted, benefits and burdens may be not only material or economic in character, but also personal, professional, organizational, psychological, and political. The most relevant benefits and burdens in a given case depend on the context and therefore must be analyzed in that context.

The relevant features of social process and context are highly variable from one case to another, but for analytical purposes it is possible to discern three broad categories.

One category relates to the decisionmaking processes involved in policy formation, including agenda-setting and problem definition, promotion of favored solutions, implementation, and evaluation. As all development practitioners have learned from experience, these decision processes do not follow a linear, technically rational path. Instead, they are heavily influenced, if not driven by, the social processes that surround these activities. For instance, the priority given to general malnutrition versus micronutrients within an international agency or national government relates to each of the above decision activities and is influenced by well-known social processes in those institutional contexts.

The social processes that surround decisionmaking represent the second category to be analyzed. These processes are made up of varied and shifting interactions among participants, each with particular perspectives, interests, values (goals), and resources. These participants can be government or international agencies, sections or individuals within agencies, private sector interests, professional organizations, academics, the media, and a variety of civil society groups. The most relevant groups vary widely in relation to distinct nutrition policy instruments and actions (for example, supplementary feeding versus vitamin A fortification), although overlapping membership is not uncommon. Some of these groups may already be active in some stage of the policy cycle, but many others remain potential participants whose identity might be revealed through the split-screen analysis of benefits and burdens described. Animating and involving these participants is a fundamental part of political strategy.

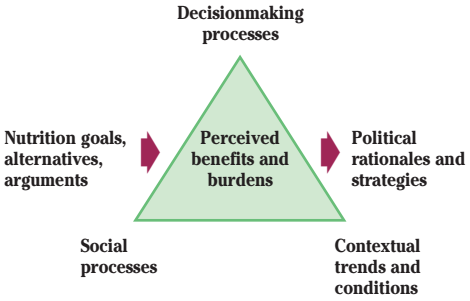
The third important category, the social context, refers to the historical and recent trends, incidents, and conditions that have influenced the specific policy problems and potential solutions. Analysis of the social context often should not be conducted at the broader level of abstraction ("nutrition" in its entirety, for instance) but rather in relation to (1) more specific actions or inputs (such as recent trends and conditions in the health sector or in administrative decentralization) and (2) some of the key participants associated with specific trends and conditions. Thus, this analysis helps identify political opportunities as well as constraints for specific nutrition-relevant actions.

Analyzing the social context for the entire nutrition domain may be useful at certain junctures but not for the purpose of developing a comprehensive nutrition policy in the usual sense. Rather, from a political perspective the main utility of such an exercise is (1) to develop an inventory of political opportunities for further analysis and strategy development and (2) to enlarge the "negotiation space" by expanding the range of political benefits and burdens potentially available.

Translating Nutrition

Translating nutrition goals and arguments into a set of viable political rationales and strategies requires integrating the components of the previous sections, as depicted in Figure 1. The fundamental dynamic depicted here is that various participants in a policy process will act upon the benefits and burdens (or opportunities and threats) they perceive in a situation, as shaped by the social processes and contextual factors that surround that situation. Implicit in this depiction is that (1) many participants are not motivated by nutrition goals and arguments as such, and many may be threatened by such goals, and (2) the pattern of benefits and burdens, or opportunities and threats, for various participants can be highly individualized and is a function of their particular values, beliefs, and interests as they perceive them.

Figure 1: Formation of Political Rationales and Strategies



It follows that effective advocacy involves not only enhancing the knowledge of nutrition goals and arguments as perceived by the nutrition community (though that may work in some instances) but, more important, enhancing the ability of other participants to perceive a convergence between the nutrition agenda and their own values, beliefs, and interests. In a similar fashion, the nutrition community may achieve more success and greater economy of effort not only by advocating for its own agenda, but also by identifying opportunities for attaching specific nutrition-related elements to the agendas of others in the political and development communities. Opportunities exist for pursuing both approaches within a wide variety of settings (government and international agencies, with the private sector and with communities and NGOs) and at various phases in the policy and program cycle (agenda setting, implementation, and evaluation). In those cases when the nutrition community does not possess the authority or resources to act on its own or compel others to act in the interests of nutrition (which describes most cases), success will depend upon the ability of the nutrition community to reframe and recognize what is of value to others while pursuing that which is of value for nutrition.

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Suggested citation: David Pelletier, "Nutrition and Politics." In *Nutrition: A Foundation for Development*, Geneva: ACC/SCN, 2002.

Funding for this project has been provided by the German Agency for Technical Cooperation (GTZ), the International Food Policy Research Institute (IFPRI), and The Netherlands Ministry of Foreign Affairs.

German Agency for
Technical Cooperation

Ministerie van Buitenlandse Zaken
Ontwikkelingssamenwerking

The Netherlands Ministry
of Foreign Affairs

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sustainable options for ending hunger and poverty

NUTRITION
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This set of briefs is the result of work on the part of a number of individuals and reflects the international collaboration fostered within the ACC/SCN. The briefs are designed to facilitate dialogue between nutrition and development professionals. They are organized both as a complete packet of information and as stand-alone documents that make the case for integrating nutrition into the work of the development community.

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1. *Nutrition: Making the Case* • Barbara Macdonald, Lawrence Haddad, Rainer Gross, and Milla McLachlan
2. *Nutrition and Education* • Matthew Jukes, Judith McGuire, Frank Method, and Robert Sternberg
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Designed by Joan K. Stephens